

American Artisan

THE WARM AIR HEATING
AND SHEET METAL JOURNAL
FOUNDED 1880



A SHEET METAL AND FURNACE SHOP IN MODERN DRESS

There is a growing tendency today to bring the sheet metal and furnace shop up-to-date. Cost records show poorly arranged shops cost money. Efficiency shows that poor shops cause poor workmanship—expensive workmanship. More shops of this type are needed.

FEBRUARY 15, 1930

The BIG Success Idea for 1930



is BIGGER and BETTER
than its big successful
predecessor of last year

*What IS this
"BIG Success Idea"?*

The most complete and successful sales
plan ever used to increase sales and profits
for the
warm air heating contractor



WRITE today for full information about this sales plan—have us tell you in detail *how much good it accomplished for Success dealers last year.* Know the facts concerning the *right way to sell better warm air heating at a better profit.*

Warm air heating with Success Heaters sold the Success Idea way solves your competition and profit problems. There is a big market for Success Heaters—for good warm air heating in your territory and we *tell you, show you and help you* get your full share of this business with this unusual and "Big Success Idea."

Success Heaters are far and wide the class of the field and the line is *complete*. Design, construction and features make Success Heaters the choice of the most practical and successful dealers in the trade.

Your biggest success will come when you become a Success dealer—write today for the Success catalog—and be sure to ask for full details on the "Big Success Idea."

SUCCESS HEATER MANUFACTURING CO.
DES MOINES, IOWA

SUCCESS HEATERS

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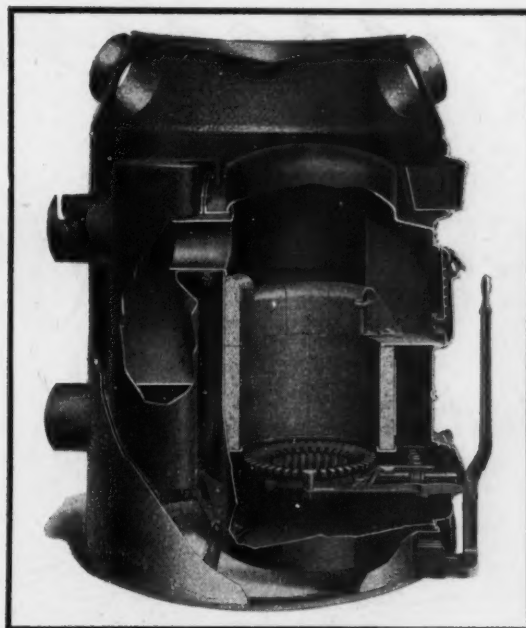
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Unsparingly Improved The new Sunbeam Steel Furnace

In 1929, Sunbeam introduced a new kind of Steel Furnace. Duplex grates—full height fire pot—re-inforced smoke collar—air tight construction—no direct connection between drum and casing—these are a few of the innovations incorporated in this modern heating plant.

Now, Sunbeam Engineers have found that there was room for further improvements in steel furnace design and have drawn unsparingly on their vast resources to offer Sunbeam Heating Contractors a heating plant which, in design, is years and years ahead of its time.

Below are listed briefly a few of the more important *new* superiorities. For complete information return the coupon.

Some Important New Superiorities

- 1 No joint at top of drum or pouch.
- 2 Has direct and indirect draft.
- 3 Direct draft damper is located outside of casing. Easy to reach.
- 4 Improved welding equipment and methods assure that all joints are as strong and durable as the boiler plate steel.

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FURNACE CO. Ohio**

A Division of American Radiator & Standard
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SUNBEAM
WARM-AIR FURNACES

Gentlemen:

Please send us literature illustrating and describing all the new features of the improved Sunbeam Steel Furnace. Send also a copy of your valuable 40-page Heating Manual.

Name

Address

City and State

A-3

Published Every Other Week by Porter, Spofford, Langtry Corp., 139 North Clark Street, Chicago, Illinois. AMERICAN ARTISAN—the Warm Air Heating and Sheet Metal Journal—entered as second class matter, January 29, 1930, at the Post Office at Chicago, Illinois, under act of March 3, 1879. Formerly entered on June 25, 1887, as American Artisan and Hardware Record.

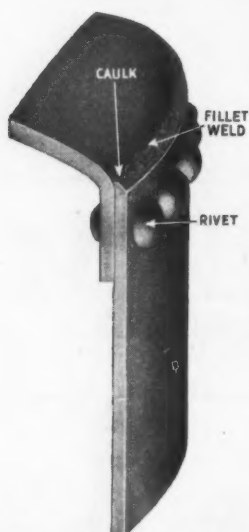


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ADDED to riveting
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for TRIPLE Protection



Riveted tight—then caulked with an air hammer, making an absolutely tight seam even when cold. To make assurance TREBLY sure, we are now adding fillet welds to all seams on drum and radiator through the electric arc process. The seams are absolutely gas-tight, and *then some!*

Front Rank Heating Systems are perfected for oil burners, mechanical stokers, and conversion gas burners.

Send for details of the new triple protection feature of Front Rank seams, also details of the attractive and profitable Front Rank franchise. No obligation on your part. Investigate this up-to-date system.

LANGENBERG MFG. CO.

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THE NEW Automatic HESS WELDED STEEL CONSTRUCTION



HERE is a furnace with grate surface of 338 sq. in. and for heat pipe area up to 590 sq. in., large enough for a large share of your furnace sales. It is automatic and comes complete with:

1. Automatic humidifier—float valve type.
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3. Electric booster blower, on stand, cord and socket.

Furnished complete and standard with these features, it sells for little more than an ordinary furnace of the same capacity. Here is a furnace you can feature and which will sell to your customers on sight. We offer an exclusive dealer proposal outside of Chicago district or where we are not represented.

Hess Warming & Ventilating Co.
1207 South Western Ave. Chicago, Ill.

THE Hess Automatic Furnace Number 47A complete with thermostatic control, electric blower and automatic water pan. Sells complete for only \$115.00. Ask for particulars and complete literature.

Hess Warming & Ventilating Company,
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Please send me complete information on your dealer plan on the Hess Automatic Furnace.

Name

Address

Town State

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A SAFE BET

RICHARDSON
"Superior" Warm Air Heater

We believe in and are members of The National Warm Air Heating Association.

A WINNER every time! The Richardson "Perfect" Warm Air Heater is safe to install on any job. Its heating efficiency *will never be out of date*. This heater is one of the reasons why the healthful principle of warm air heat is *here to stay*.

This heater will be a trump card even with the toughest prospects. When you can't get 'em to make up their minds, or when they're undecided as to the type of heat they need, sell 'em this good old reliable. They can't go wrong in buying it—and with its long record of heating performances you can't go wrong in recommending it.

RICHARDSON & BOYNTON CO.

Manufacturers of "Richardson" "Perfect" Heating and Cooking Apparatus Since 1837

260 Fifth Ave., New York.

Utica, N. Y.

New York Utica Newark Philadelphia Boston Chicago Buffalo Minneapolis Cincinnati Detroit Providence

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OIL BURNER

LISTED AS STANDARD BY UNDERWRITERS' LABORATORIES

Approved by New York Board of Standards and Appeals



Continuous Flame Automatically Governed

THE McILVAINE is scientifically correct for warm air furnace installations. It is quiet and clean. No cracking of furnace firepots. No opening of furnace joints. Its continuous flame, mechanical draft and graduated control insure continuous warm-air circulation, with the highest efficiency—greatest economy—freedom from odors and trouble.

McIlvaine Oil Burners (since 1924) are giving perfect satisfaction in the finest homes—in all types of warm-air furnaces, steam and vapor boilers and hot water heating systems. They have demonstrated their dependability, economy and efficiency in actual service.



**See Our Exhibit at the 7th Annual Oil Burner Show
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Find out if your territory is still open*

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A MESSAGE FROM GEORGE HARMS OF F. MEYER & BRO. CO. TO THE FURNACE MEN *of the* UNITED STATES

We are not unaware that numerous price quotations and discounts of various levels are reaching you from several sources, and wish, at this time, to remind you that *there is a difference in merchandise as well as in prices.*

HANDY PIPE has always been (and will continue to be) a "quality first" product and no price situation can compel us to deviate from our standard of quality in materials and construction.

We pay MEN for doing MEN'S work in our factory and our plant is running full time right now to fill the demand for HANDY PIPE.

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F. Meyer & Bro. Co.
Per **GEORGE HARMS**

**SENSATIONAL NEWS FOR YOUR CUSTOMERS
 SENSATIONAL NEW PROFITS FOR YOU**

The new
CLOCK EQUIPPED
Jewell Junior Temperature Regulator

\$ 35⁹⁵

Complete with all Fittings to Install

**PLUS
 INSTAL-
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 AND
 BATTERIES**

Today is a red letter day in the history of automatic heating.

Today you are able to open up an entirely new market for temperature regulators and earn entirely new profits impossible to get until now.

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The Jewell Junior *clock equipped* temperature regulator completes the Jewell line. It is the big profit regulator you have been waiting for. It is ready for you now. Write or wire for complete information.

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Executive Offices: 2726 Fourth Ave. So., Minneapolis
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"An extra hour's sleep in the morning!"

Jewell Junior
TEMPERATURE REGULATOR

Mention AMERICAN ARTISAN in your reply—Thank you!

"Old Wine in New Bottles"

LONDON BOILER PLATE Quality Plus FURNACES



ARE COLD RIVETED AND
WELDED SMOKE, GAS AND
FUME TIGHT.

ARE EQUIPPED WITH EITHER
DUPLEX BASKET DUMP, TRI-
ANGULAR OR DRAW-CENTER.

GRATES AND RADIATORS

FOR
SOFT OR HARD COAL,
COKE OR OIL

"Feather Your Nest"—
Write Today for Proposition

The London Furnace Co.
LONDON, O.

THOS. W. PEARSON—Sales Manager

BRILLION FURNACES

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business

ONCE you sell a warm air
heating system using a
Brillion Furnace you start a
new wave of increasing
business.

The quality, design and fea-
tures of the Brillion are such
that you and your customers
would expect the Brillion to
cost much more than it does.
This enables you to give a bet-
ter job at a sales getting
price.

Find out now how we
can build and sell this
better furnace at a price
that gives you a larger
profit.

Send the coupon today.

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Send me full details and Catalog No. 80.

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Address



"FLORENCE"

Made by the
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the famous
Florence Hot
Blast Heater,
Supreme Flo-
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Florence
Cook Stoves
and Ranges.



The
Furnace
with the
ORIGINAL
HOT
BLAST
that
controls
the fire

For Extra Heat and Extra Profits

THE Florence Hot Blast positively controls the fire by regu-
lating the draft flow under and over the fire. In the
Florence all products of combustion are turned into heat units.
It produces extra heat from the cheapest of fuels and it's the
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the coupon.

C. EMRICH CO. (Since 1861) COLUMBUS, OHIO

Mail this Coupon Today

C. EMRICH CO., COLUMBUS, OHIO

Send me your catalog and prices on Florence furnaces.

Name
Street and Number
City State..... A.A. 2-15

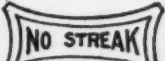
Mention AMERICAN ARTISAN in your reply—Thank you!

A NEW AND BETTER FURNACE by PEERLESS

Watch for the presentation with full details in the next issue—MARCH 1st, and get set for more business and greater profits—

Write for advance information

THE PEERLESS FOUNDRY CO.—INDIANAPOLIS, IND.

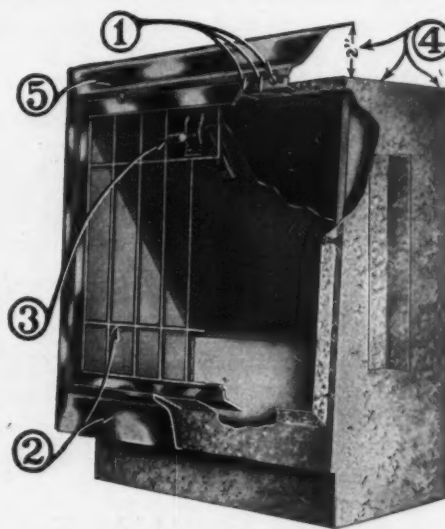
Assure your customers of **CLEAN WALLS** above the registers by installing the 

PERMANENT prevention of streaked walls above the registers is only possible with the Rock Island NO-STREAK Register.

The **PATENTED** expanding joint of register front to register box is found only on the NO-STREAK. Use this modern register on all new installations and on old jobs where folks *know* that streaked walls are an eye sore and an extra cleaning expense. Rock Island NO-STREAK Registers are attractive, too—rich looking and high quality in all respects.

Made in all standard sizes and finishes—send the coupon for catalog which shows all designs and finishes.

**ROCK ISLAND
REGISTER CO.**
ROCK ISLAND - ILLINOIS



ROCK ISLAND REGISTER COMPANY
ROCK ISLAND, ILLINOIS

Send me your catalog and price list.

Name

Street and Number

Town..... State.....

Say you saw it in *AMERICAN ARTISAN*—Thank you!

Give your customers
air conditioning
with the
**FARRIS WATERBASE
FURNACE**



*The only
furnace
that does
not stir
up dust
with a
fan
installation*

35% to 55% relative humidity

THIS is the most simple and practical application for creating correct humidity.

The Farris Waterbase principle has been in successful use in thousands of homes for many years. Now it is perfected to a high degree. It is automatic—fool proof and no bother.

It cleans the air also and with this construction the source of dust leakage in ordinary furnaces is eliminated.

Note the **PATENTED** waterbase—automatic valve and provision for easy flushing and draining.

This is not the only **FARRIS** feature. It is extra heavy, self-cleaning and the feed section and ash pit extend through casing. Ground doors, leakproof joints and many other features make it the high grade furnace you need to secure profitable business.



FARRIS FURNACE CO.

SPRINGFIELD ILLINOIS

FARRIS FURNACE CO., SPRINGFIELD, ILL.

Send me full details and dealers' proposition on the Farris Waterbase.

Name

Address

City State..... A.A.

When writing mention **AMERICAN ARTISAN**—Thank you!



**Heat Wanted!
But Nobody
Home**

4 to 6 jobs a day—one man—powerful—light

CHOKED furnaces need cleaning badly these winter days. There's plenty of work waiting for Super Service owners. Ask for it.

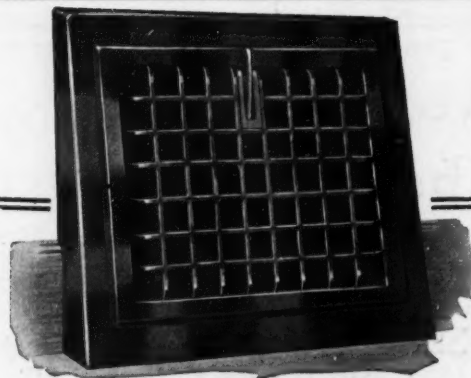
Coal men are doing it. They are cleaning furnaces in self-defense; their coal must make good. Furnace men can coin money right now—or see it go to others.

This handy, one-man outfit will earn for you faster than you pay us. Ask about our easy terms.

The National Super Service Co.

1946 N. 13th Street

Toledo, Ohio



**The
AUERISTOCRAT**

of all registers, combining air capacity, decorative and concealing features.

Designed to conform with the Standard Code so they fit all standard boxes.

Auer Patented mechanical features make it perfect in operation,—quick and easy to install.

Auer's Save Hours and Dollars

The AUER REGISTER CO.

Cleveland, Ohio

Announcing the PURE AIR HEATER

— a high quality
highly efficient
all welded steel
warm air heater —

MADE BY THE

ENTERPRISE

BOILER & TANK WORKS, INC.

CHICAGO

ILLINOIS

who have discontinued
their sales organization
known as the

COLBURN HEATER COMPANY
CHICAGO ILLINOIS

DEALERS—JOBBER—MANUFACTURERS

write today for new price list
and full details—just mail
the coupon below today.

We are especially equipped to
serve Jobbers and Manufac-
turers who desire to sell a
high quality steel furnace
under their own trade name.

-----SEND THIS COUPON TODAY-----

ENTERPRISE BOILER & TANK WORKS, Inc.
1955 N. Long Ave., Chicago, Ill.

Send us full details and prices on the Pure Air
Heater.

Name.....

Address.....

☐ DEALER ☐ JOBBER ☐ MANUFACTURER

This furnace will
make *extra* sales
for you ~



BEING content with the business
that just comes to one is very much
out-of-date this year. You have to do a
good selling job and if you are wise
you'll see to it that you have a furnace
that has outstanding exclusive features.

The Ath-A-Nor is such a furnace.

It's the
SMOKELESS

THREE-WAY AIR BLAST FEATURE

that immediately interests the prospect.
It means complete combustion, fuel
economy and powerful heating.

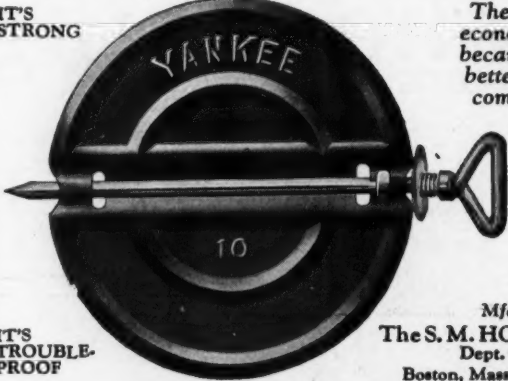
Let us tell you all about it now.

Besides the Ath-A-Nor the May-
Fieberger line includes several styles
and a complete range of sizes in both
cast iron and steel furnaces. Every
May-Fieberger furnace is high grade
and reasonably priced.

The May-Fieberger Co.
Newark, Ohio

**INDEPENDENT
REGISTERS --
VENTILATORS--GRILLES**
"Fabrikated"
COLD AIR FACES
Any Size - Any Finish
INDEPENDENT REGISTER & MFG. CO.
3747 EAST 93rd STREET CLEVELAND, OHIO
SEND FOR NEW CATALOGUE

HOWES YANKEE HOT-AIR DAMPER
IT'S STRONG
The most economical because it's better and complete
Mfd. by
The S. M. HOWES CO.
Dept. G.
Boston, Massachusetts
IT'S TROUBLE-PROOF



**WIRE DROP HANDLES
for FURNACE DOORS**
Furnished Nickel Plated in Following
Lengths:
2 5/8" - 3 1/8" - 3 3/8" - 4 1/2" - 5 1/2"
We also manufacture a complete line of Furnace and Stove Trimmings—such as Pokers, Lifters, Scrapers, Shovels, Cranks, Shakers, Lever Handles, Turnkeys, Knobs, Air Mixers, Register Screws, Gas Stove Fittings, Valve Wheels, Furnace Regulators, etc.
Write for Samples and Prices
THE FANNER MFG. COMPANY
Brookside Park CLEVELAND, OHIO

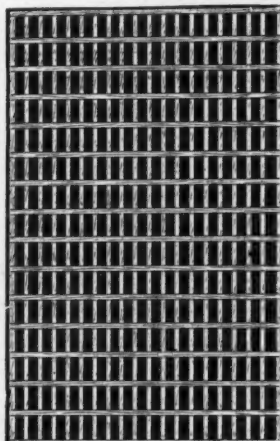


A New Furnace Paste
LARCO MINERAL PASTE
Non-Cereal Non-Souring Keeps after Mixed
For Better, Neater, Quicker Work
Asbestos Paper does not absorb as much Larco Mineral Paste as it does cereal pastes. Paper does not become soggy—not so apt to tear.
Larco Mineral Paste does not turn brown—no stains—mice will not touch it either when moist or dry and it does not gum up the hands.
Larco Paste can be kept on hand mixed ready for use as it does not sour. It has greater covering qualities. It slips easily but adheres permanently.
Write for circular which tells all about it—get Larco prices.
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THE LAMSON & SESSIONS CO.
THE KIRK-LATTY CO.
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AMERICAN WOOD REGISTERS
WHEN you order wood registers be sure of getting the best by buying these famous wood faces—
Known as the finest for over 21 years
They add extra value without extra cost. We make nothing but Wood Registers and only the best.
Write today for catalog and latest price list.
The AMERICAN WOOD REGISTER CO.
Plymouth, Indiana

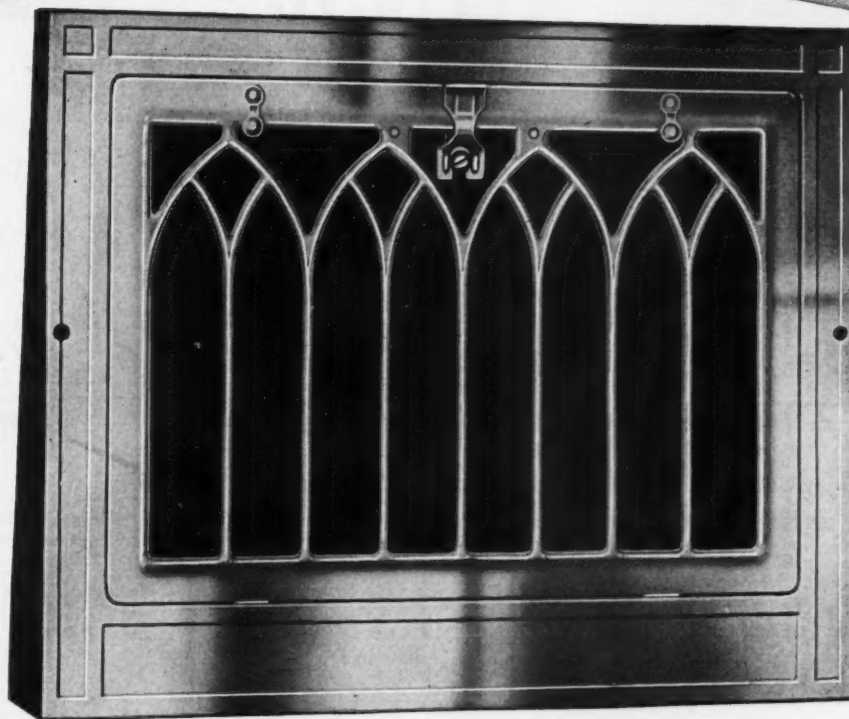


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FURNACE DUST ELIMINATOR**
MAKE a hit with your customers —include this patented feature on every new installation—costs little but makes the job of removing ashes a clean, easy task. It prevents dust from spreading throughout the home—saves grates and fuel.
Fine nozzle spray settles the dust. A turn of the control valve before shaking or removing ashes does the trick. High quality throughout—easily attached.
Get full details and prices today —make extra profits this season.
DUSTLESS ASH COMPANY
MUSKEGON, MICHIGAN



"American Seal"
FURNACE CEMENT
**Roof Cement — Stove Putty
Plumbers Putty**
PAINTS and SPECIALTIES
WILLIAM CONNORS PAINT MFG. CO.
TROY Established 1852 NEW YORK
JAMES L. PERKINS
Western Distributor
140 S. Dearborn St., Chicago, Ill.

THE LINE OF NO REGRETS



No. 110 Series

Why Not a Modern Register?

THERE'S a modern look about the new H & C No. 110 Series, and why shouldn't there be? It's a day when the old conventional register patterns are passing out of the picture. Home owners want new notes in register design as well as anything else—and will pay to get them.



If you're out to sell the better jobs this year, let the distinction of this fine new register help you put it over. Leading Jobbers already have the line in stock, or soon will have. If you want to be a leader in your community, take on the No. 110!

HART & COOLEY REGISTERS

Made by HART & COOLEY MFG. CO.

CHICAGO
61 West Kinzie Street

Philadelphia, 1600 Arch Street
New York, 101 Park Avenue

NEW BRITAIN, CONN.
Corbin Avenue

Boston, 75 Portland Street
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ALSO: A COMPLETE LINE OF FURNACE REGULATORS, PULLEYS, CHAIN, AND WARM AIR DAMPERS

Factories, New Britain, Conn.; Holland, Mich.; Nashua, N. H.

Say you saw it in AMERICAN ARTISAN—Thank you!

Entered as second class matter, January 29, 1930, at the Post Office at Chicago, Ill., under act of March 3, 1879. Formerly entered on June 25, 1887, as American Artisan and Hardware Record.

Founded 1880

American Artisan

THE WARM AIR HEATING
AND SHEET METAL JOURNAL

Yearly Subscription
Price:

United States\$2.00
Canada\$3.00
Foreign\$4.00

Published EVERY OTHER SATURDAY—to Promote Better Warm Air Heating and
Sheet Metal Work

PORTER - SPOFFORD - LANGTRY CORPORATION

139 North Clark Street, Chicago—Telephone Central 7670

Fred D. Porter, *President* John C. Langtry, *Vice-President* Howard H. Bede, *Secretary*
Editor: Joseph D. Wilder Business Manager: Etta Cohn

Advertising Representatives:

Charles E. Kennedy — J. F. Johnson

New York Office: 1403 Pershing Square Bldg., 100 E. 42nd St., Tel. Ashland 5342

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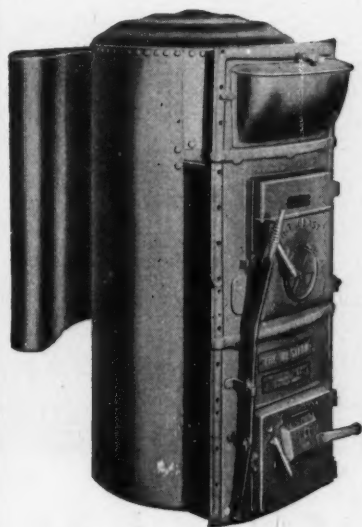
\$2.00 Per Year

Table of Contents

	Page		Page
Wage Spreads.....	19	Sheet Metal Solves Ventilating and Fire Hazard	30
The Wisconsin Convention.....	20	The Story of an Interesting Sheet Metal and Ventilator Installation in Los Ange- les	
An Account of the Program Presented by the Wisconsin Sheet Metal Contractors' Association in Sixteenth Convention		Organize Committee to Encourage Build- ing	31
National Building Forecast.....	22	Merchandising	32
A Forecast of Business as the Architec- tural Forum Finds It from a Country- wide Telegraphic Survey		The Story of Fred Hauer of Peoria, Ill., Who Has Built a Fast-Going Business by Modern Merchandising	
You Killed the Goose.....	26	Ventilation	36
A Timely and Straight-from-the-Shoulder Letter on Consignment		A Department Devoted to the Problems and Jobs of Ventilating	
Construction of Spiral Pipe.....	27	Association Activities.....	38
A Pattern Problem Developed by Tri- angulation		New Items and News Items.....	39
New Equipment Shown at Milwaukee... ..	28	Holding Old Customers.....	41
List of Exhibitors and Their Products		Notes and Queries.....	42
Exhibitors at Illinois Hardware Show... ..	29		



Enjoy the
WARMTH
of Western Profits



The ever-growing circle of Western popularity radiates to all parts of the United States and Canada. Dealers everywhere are already enjoying the warmth of Western profits just as Home Owners everywhere enjoy the warmth from Western Furnaces.

Glance through our list of jobbers. You'll find one within easy corresponding distance. Write to him for Catalog No. 16 or write direct to us. Our information will interest you—it's too lengthy for this small page—let us know your address.

WESTERN STEEL PRODUCTS CO.

130 Commonwealth Ave. - - Duluth, Minn.

Group One

Pittsburgh, Pa. — *Wagener-Proie Furnace Company*
Ravenna, Ohio — *Ravenna Furnace Company*
Cincinnati, Ohio — *Niehaus Furnace Repair Company*
Atlanta, Ga. — *Moncrief Furnace Company*
Chicago, Ill. — *Western Steel Products Company*

Group Two

St. Louis, Mo. — *MacRoy Supply Co.*
Kansas City, Mo. — *Kansas City Furnace Co.*
Duluth, Minnesota — *Marshall-Wells Co.*
Omaha, Nebraska — *A. Y. McDonald Mfg. Co.*
Lincoln, Nebraska — *A. Y. McDonald Mfg. Co.*
Sioux City, Iowa — *A. Y. McDonald Mfg. Co.*
Minneapolis, Minn. — *A. Y. McDonald Mfg. Co.*
Fort Dodge, Iowa — *Leighton Supply Co.*
Fargo, N. D. — *Fargo Cornice & Ornament Co.*

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Seattle, Wash. — *McPherson Furnace & Equipment Co.*
San Francisco, Cal. — *Pacific Sheet Metal & Furnace Co.*
Winnipeg, Man. — *Marshall-Wells Co.*
Saskatoon, Sask. — *Wood-Vallance Co., Ltd.*
Regina, Sask. — *Wood-Vallance Co., Ltd.*
Edmonton, Alta. — *Marshall-Wells Alberta Co., Ltd.*

When storage
tanks must be...

FREE from *RUST* Corrosion-Resistant

Monel Metal Storage Tanks
made by a sheet metal con-
tractor for a producer of
pharmaceuticals and
essential oils.



Then....

be sure to use *Monel Metal*

To many manufacturers and dealers in various liquid products, rust is a double problem. It is a contaminating influence which endangers the purity of the product. It is a destructive influence because it shortens the life of storage tanks. So, also with other forms of corrosion. These manufacturers and dealers therefore offer you an exceptional opportunity to sell and furnish rust-proof, corrosion-resistant Monel Metal tanks.

Monel Metal storage tanks will solve many of these customers' most pressing problems. Monel Metal will not—cannot

—rust...since it is an alloy of Nickel and copper. It resists corrosion and is unaffected by the attacks of most liquids and chemicals. As a matter of fact, it is widely used in the chemical industry because of its high degree of corrosion-resistance.

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American Artisan

THE WARM AIR HEATING
AND SHEET METAL JOURNAL



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No. 4

WAGE SPREADS

IT IS not often that the matter of spread between cost of labor and selling price of that same labor is discussed.

But up in Milwaukee last week the question of how one contractor could enter another contractor's field and get jobs, even though he used higher-priced labor, came up for discussion.

The result of the discussion was that the representatives of the various sections of Wisconsin listed on a large blackboard their labor costs and directly opposite that column the prices charged the customer for that labor.

The list is interesting and well worth publishing. In looking over the list the reader should remember that this great diversity occurs within one state. And the reader should also keep in mind that in the towns and cities listed there exists as great a diversity of community activity as is possible to find anywhere else in the country.

Town	Population	Cost of Labor	Charge for Labor	Mark-up Per Cent
Waukesha	13,000	\$0.80-\$0.95	\$1.00-\$1.25	25-33½
Shawano	4,000	.60	.80	33½
Milwaukee	500,000	1.05	1.60	50
Sheboygan	40,000	.97½	1.40	48
Racine	60,000	1.15	1.75	50
LaCrosse	31,000	1.00	1.40	40
Manitowoc	18,000	.75	1.10	40
Neenah	8,000	.75-.90	1.00-1.25	33½-35
Madison	40,000	1.25	1.75	40
Menomonie	6,000	.80	1.20	50
Appleton	20,000	.80	1.10-1.25	37-50
Beloit	22,000	.40-.60	1.25	200-100
Janesville	20,000	.40-.60	1.25	200-100
Oshkosh	35,000	.75-.90	1.00-1.25	33-30
Two Rivers	8,000	.75	1.25	67

This list of labor spread tells a story which might well occupy an entire issue of any magazine. In the rows of figures lies the whole thinking process of the furnace and sheet metal industry. We are going to say more about this list later, but for the time being we would like readers to consider these points.

Here are towns which are strictly rural trading centers. Contrasted against them is the largest and the next largest cities in the state, heavily industrial in nature.

For the most part the mark-up shows a spread of from 40 to 50 per cent. In these cities it is evident that only profits on labor are added to the cost of labor.

But in two towns the mark-up is 100 and 200 per cent. It is also evident here that the contractor must be adding his profits for his materials into the charge for the labor.

Which method is right? Should only labor profits be added to labor costs as items are carried on the books, or should all profits for the job be carried under mark-up on labor costs? Generally speaking, it would seem that most contractors think it advisable and easier to add only labor profits to labor costs, but there may be another side to the story.

And another thing. The cost of labor varies from 60 cents as the low figure to \$1.25, the high cost. Yet the labor cost is not the highest in the biggest city, nor even in the second largest. And even more interesting is the fact that the highest-priced labor cost occurs in the least industrial community of the state, Madison.

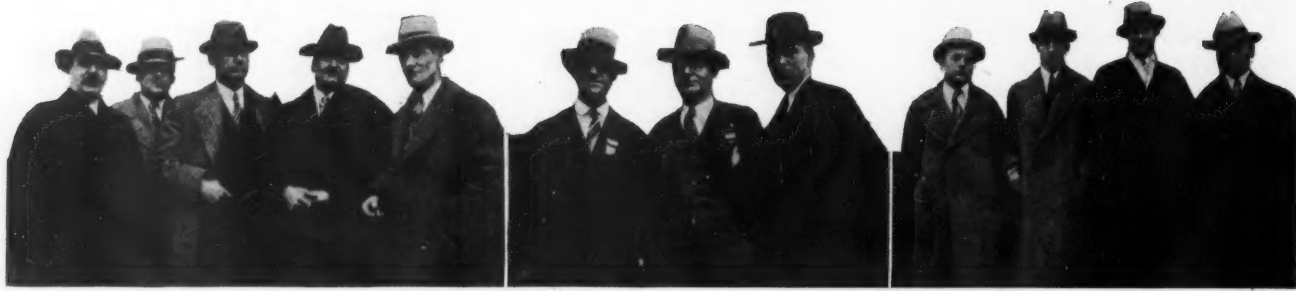
What is governing this cost of labor? Can we say that contractors are paying according to the market price of labor in all industries, or are they simply paying what custom has decreed?

We would like to get some argument on this subject. Here is a matter that strikes to the very roots of the furnace and sheet metal industry. How shall we figure spread? On what should we add our profits—labor alone, labor and materials, or add equally in mark-up to both? Why do we pay what we do for labor? Are we paying what labor is worth, or are we paying what we have to to get our jobs done?

All right, let's go!

Hit-or-Miss Bookkeeping

More and more it is being impressed on furnace and sheet metal men that cost records, in other words bookkeeping, must be the foundation upon which business is built. This year's conventions have brought this out strongly. Every time costs are discussed it appears that many contractors are ignoring costs altogether and running their business hit or miss. We would like to know the remedy. What do you say?



Some of the Members at the Convention—Left, P. Ziebarth, Fred Graf, A. C. Butters, O. Ziebarth, C. Tolg. Center, F. Neleson, C. L. Bailey, C. N. Kuhns. Right, J. H. Dahn, A. M. Farrow, H. A. Gehrke, Wm. A. Bruechert

Wisconsin Sheet Metal Contractors Hold Sixteenth Annual Convention

FOR the sixteenth consecutive year the Master Sheet Metal Contractors Association of Wisconsin gathered in Milwaukee for their annual convention. The convention was held in the Schroeder Hotel, February 3rd and 4th. Despite recent bad weather throughout the state more than 125 members and visitors registered. Several new members were voted into the association.

The two day program was filled with events every minute of the day. Some little difficulty was experienced by absence of one or two speakers because of illness, but their places on the program were filled by other speakers or extemporaneous discussion.

First Day's Meeting

The morning of the first day was devoted to business of the association. Reports of officers for the past year were read and approved. Committees also reported on 1929 activities. In some instances considerable was accomplished during the year, while in other cases investigations and work begun in 1929 will be carried on in 1930.

George Harms, past president of the National Association, was to have been the first speaker of the day. Mr. Harms was unable to attend because of illness. His place on the program was taken by Philip Grau, a dynamic speaker who has done much work with associations



Paul Biersach

during the past few years. The subject of Mr. Grau's address was "The Value of Organization." Due to his intimate knowledge of association activities, Mr. Grau was able to draw upon personal experiences for illustrations of his points. He showed how other groups of business men, some large groups and some small groups, were able to accomplish radical changes through the simple expedient of working together. He paralleled the sheet metal contractors' association with state and national governments and pointed out that where an association followed the needs and wishes of the majority much benefit resulted, but that where an association

pulled crosswise little real benefit was derived.

The second address of the afternoon was a report of the Copper and Brass Association activities given by L. C. Leimhuehler. This report of the Copper and Brass Association was given at the Indiana sheet metal men's convention and was reported in the February 1 issue of the *AMERICAN ARTISAN*. In brief the report indicated important advances in knowledge of handling copper in roofing work. Tests showed the strengths of different width of lap in seams. Other tests showed that the maximum load any seam can successfully support is about 250 pounds per square inch of seam. The investigations of the association also delved into the corrosive action of sea air and rain water on copper flashing. These tests indicated that when water does not stand on the copper for too long a time no action may be expected. The last item in the paper dealt with the capacity of gutters. Research disclosed that in 21 cities $7\frac{1}{2}$ inches of rain per hour may be taken as maximum unless there shall be absolutely no overflow when 10 inches should be provided for.

The concluding feature of the first day's program was a general discussion of questions put in the question box. These questions brought out some interesting heating and ventilating problems and

also some heated discussion on how to figure capacities of equipment in blowpipe work.

Second Day's Meeting

The first speaker on the morning program was R. S. Shannon, member of the board of directors of the Milwaukee Association of Credit Men. The subject of his talk was "Credit," and he explained how it is established, what principles underlie the granting and holding of credit and what actions may wreck a good credit standing. Mr. Shannon knew his subject and drew examples from personal experience. Since, under today's time payment buying, credit affects practically every sheet metal contractor, this talk held the meeting's interest.



R. G. Suettinger

This discussion of credit was followed by an address by Ernest Szekely, chief engineer, Bayley Blower Company. Mr. Szekely's talk was short and to the point. He stressed the need for close attention to the problems and drawings of any job the sheet metal contractor is bidding on. He stated that where the contractor is dubious about the final operation of the system he should feel confident enough to call the attention of the architect or the engineer to the design and get the matter straightened out before he puts in his work. "By this method," said Mr. Szekely, "jobs which otherwise go sour and cause endless litigation and argument over pay-

ment and design could be prevented before the work is done."

One very important point brought out was, "The sheet metal man ought to get on the job before every other trade. Then the sheet metal man would not have to run his leads around and through and behind every conceivable kind of pipe, machine, etc. Most of the erection grief would thereby be done away with."

As a concluding feature of the talk the listeners were invited to submit problems on which they had been stuck and ask the speaker's advice. As a result of this request some problems requiring real thought and study were placed before the meeting.

The afternoon's meeting was begun with a short talk by W. C. Markle, national secretary. He related the association's experience with the new trade book, "Standard Practice in Sheet Metal Work," and told where and how copies of the book had been placed. He read a number of letters commending the book and discussed how best the book could be placed in the hands of architects and engineers by local associations or by individual firms or contractors.

This address was followed by the showing of a new film prepared by the American Rolling Mill Company. The film depicts the operation of continuous rolling of sheets developed by the company. The film takes the viewer through the great furnace rooms, shows how the furnaces are loaded and how they operate. Action drawings are injected at intervals to illustrate the operations going on inside furnaces and other equipment.

The operation by which great billets of iron are rolled smaller and smaller, drawn longer and longer until in the end they are thin sheets of sheet metal is intensely interesting.

The film was followed by a floor discussion of roofing, ventilating, cornice, blowpipe and furnace work. Several discussions developed, principally around the subject of fans in furnace installations, advantage of using a regulator and the benefit

to be had from using a vacuum cleaner to get additional business for the furnace man.

Dinner and Dance

The concluding feature of the convention was the banquet and dance on the last night. Practically every visitor and member must have attended the banquet for every available seat was occupied. The chicken dinner proved delicious and the entertainment was very good. The orchestra played old and new songs,



W. C. Markle

the guests sang as though they really enjoyed singing, and the speeches proved short and snappy. The dance following brought out all the good looking male wall flowers (especially lonely and unaccompanied salesmen). Anyway the ladies had a good time and so did the men who got a chance to dance.

Officers for 1930

During the business meeting a slate of officers for 1930 was drawn up by the nominating committee and unanimously elected by the association. The officers elected for 1930 are as follows:

President, Henry Geussenhainer, Sheboygan.

Secretary, Paul Biersach, Milwaukee.

Treasurer, Alfred Goethel, Milwaukee.

First Vice-president, R. G. Suettinger, Two Rivers.

Second Vice-president, Louis
(Continued on Page 35)

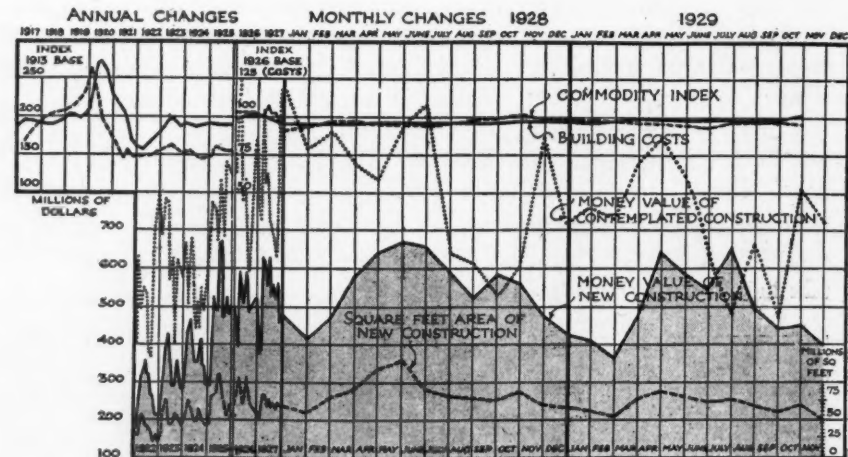
National Building Forecast Supports Hoover Optimism

1930 may be Greatest Construction Year

By C. STANLEY TAYLOR

Director of Research, National Trade Journals, Inc.

For the past eight years the ARCHITECTURAL FORUM has issued an annual forecast of building construction which has been closely substantiated by later facts. This forecast has become a recognized authority and is of particular interest this year because of the various statements by President Hoover regarding activity in the construction industry during 1930.



THE BUILDING SITUATION
The various index lines are designated on the chart, which is developed from reports of the United States Department of Commerce, the F. W. Dodge Corporation, and *The Engineering News-Record*

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BUILDING ACTIVITY in the UNITED STATES SINCE 1917

The optimistic forecasts of activity in the building field which have been made for and by President Hoover are entirely supported by the 1930 Building Forecast just issued by the group of building publications operated by National Trade Journals, Inc. In building activity alone it is apparent that an expenditure of at least seven billion dollars will be reached, and with the addition of engineering projects and public works, the total may run to over nine billion dollars.

For the past eight years the Architectural Forum has presented an exhaustive study of the work under way in the architectural offices of the country for the ensuing year. This building forecast has been based on individual confidential reports received from architects all over the country and has made possible a picture of future building activity which cannot be obtained in any other manner.

The present forecast, therefore, is based on direct reports from thousands of individuals and organiza-

tions who create and carry out the building projects of this country.

Primary Sources

To a great extent the architects, engineers and contractors of this country represent the advance guard of its building construction. They constitute the first group which records changing trends in the volume and type of building construction. They know long in advance what is going to happen. The reasons for this condition are obvious because architects, engineers and contractors are the first to hear of construction projects of any nature. They are the first to discuss them in any detail outside of the owners' immediate circle of business contacts. The architect and the engineer work on plans and specifications long before there is any general knowledge of the construction project. The contractor is called in for information and for preliminary figures. Thus this group has an approximate knowledge of future building activity.

The building industry is looking

forward to the year 1930 with rapidly growing optimism. During the latter part of 1929 opinions as to what building activity may be expected during the year 1930 varied considerably and were so entangled in unusual economic developments that there seemed to be no positive average opinion as has been the case in previous years. The sudden interest of President Hoover in stimulating construction activity as a means toward economic stabilization, together with the promising aspect of financing for building projects has led to an unusually optimistic outlook.

The three primary factors which will influence the building program of 1930 include the volume of projects which are contemplated; the availability of mortgage money and public financing for such projects; and the so-called Hoover program. The steps taken to prepare this forecast, therefore, have included, first, the obtaining of individual reports from architects, engineers and contractors to gain some measure of

the projects under planning or discussion for 1930, and second, the obtaining of a cross-section of opinions from the leading mortgage companies as to the probable availability of money to finance the construction program of 1930. The Hoover program is well known to all because of the wide publicity given to it by newspapers within the past few weeks. President Hoover has nominated the construction industry as the most forceful potential factor toward the stabilization of prosperous conditions. He has set an example by stimulating government, state, city and public utility construction. He has focused the interest of everyone on the desirability to immediately start programs of construction, including public buildings, roads, harbor projects and similar contemplated improvements. That this activity will provide a stimulus for construction activity is obvious, and with this as a foundation we can proceed to the general building forecast which is expected to swell the grand total of activity close to the nine billion dollar mark, making 1930 the greatest of all construction years.

Mortgage Money in 1930

A telegraphic survey was conducted at the end of December by the Research Department of National Trade Journals, Inc. Questionnaires were sent to officials of leading savings banks, building loan associations, title companies, insur-

BUILDING TYPE	N. EASTERN STATES	N. ATLANTIC STATES	S. EASTERN STATES	S. WESTERN STATES	MIDDLE STATES	WESTERN STATES	U. S. A.
Automotive	\$23,361,800	\$47,580,500	\$6,519,000	\$18,978,900	\$56,575,900	\$16,859,200	\$169,875,300
Banks	37,806,100	31,602,800	2,029,500	10,688,700	48,515,300	7,281,600	137,924,000
Apartments	27,765,200	325,954,100	9,114,300	26,026,800	95,407,000	68,355,200	552,622,600
Apartment Hotels	2,980,700	65,050,600	8,466,500	24,571,300	73,156,300	36,367,000	210,592,400
Clubs, Fraternal, etc.	5,797,400	44,653,100	2,242,700	17,978,500	75,891,000	15,243,800	161,806,500
Community and Memorial	6,437,000	26,486,000	861,000	5,608,800	26,670,500	26,752,500	92,815,800
Churches	12,685,400	44,665,400	30,262,100	34,784,400	70,876,700	23,993,200	217,267,200
Dwellings (Below \$20,000)	24,751,700	33,968,500	10,245,900	11,676,800	41,323,900	15,846,500	137,813,300
Dwellings (Between \$20,000 and \$50,000)	11,877,700	44,362,000	8,269,700	9,983,500	45,628,900	15,571,800	135,693,600
Dwellings (Over \$50,000)	13,300,400	39,524,000	6,642,000	6,810,100	34,739,300	11,041,300	112,057,100
Hotels	13,919,500	78,941,400	31,910,300	76,711,000	87,649,800	104,468,000	393,600,000
Hospitals	33,488,800	161,523,600	11,500,500	46,649,800	94,025,300	24,190,000	371,378,000
Industrial	14,358,200	58,634,100	23,985,000	21,381,500	141,060,500	29,725,000	289,144,300
Office Buildings	56,662,000	250,788,800	1,107,000	41,922,500	255,930,200	72,426,500	678,837,000
Public Buildings	14,296,700	88,182,800	7,293,900	18,876,400	146,062,500	44,062,700	318,775,000
Schools	47,855,200	188,395,000	30,053,000	77,174,300	223,003,100	74,374,000	640,854,600
Stores	15,485,700	74,136,200	8,790,400	10,282,800	43,726,500	14,509,900	166,931,500
Theatres (All Types)	11,808,000	21,250,300	10,036,800	15,260,200	30,167,900	9,056,900	97,580,000
Welfare Y.M.C.A. etc.	29,151,000	59,749,300	5,817,900	8,581,300	34,517,900	5,510,400	143,327,800
TOTAL VALUE OF NEW BUILDINGS	\$403,788,500	\$1,685,448,500	\$215,147,500	\$483,947,600	\$1,624,928,400	\$615,635,500	\$5,028,896,000
New Construction Under Architect's Supervision.....							\$5,028,896,000
Buildings of All Types—Excluding Public Works and Utilities—Not Designed by Architects.....							1,972,000,000
(Estimated from Averages of Previous Years)							
TOTAL ESTIMATED CONSTRUCTION FOR 1930.....							\$7,000,896,000
(Exclusive of Public Works and Utilities)							

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DETAILED FORECAST of NEW BUILDING CONSTRUCTION for 1930

ance companies, and other mortgage lending institutions in every part of the country. The questions asked were these:

1. Have there been indications of easier mortgage money since the Wall Street readjustment?
2. Do you anticipate easier mortgage conditions in 1930?
3. Do you anticipate many applications for building and permanent mortgage loans in 1930?

The result of analyzing a large number of replies sent in by the officials of mortgage lending interests has been the formation of a fairly definite picture as to mortgage money conditions for 1930. The replies which were received

were in general quite encouraging. They were conservative and carefully considered. The average opinion indicated that there have already been some signs of easier mortgage money during the short period since the Wall Street readjustment. As a rule these indications varied consistently according to districts of the country. In the area of metropolitan New York the first signs have already appeared as indicated by the announcing of a number of building projects. Mortgage money has not yet become easier for smaller projects nor for projects in the outlying suburban districts. This same condition holds true for the Middle West. On the Pacific Coast optimism is the rule. Mortgage money promises to be definitely easier in the near future. In the South mortgage money conditions show definite signs of improvement. In upper New York State and most of New England there has as yet been no change.

It is apparent that for a period representing probably the first half of 1930 mortgage money channels are seriously blocked by two obstacles. In the first place, savings banks and possibly even building and loan associations were drained heavily for funds to meet stock margin and collateral loan requirements. The funds which might ordinarily go for mortgage purposes have been

CHANGES IN PERCENTAGES OF PUBLIC DEMAND FOR NEW BUILDINGS IN 1930 compared with 1929.

NATIONAL PERCENTAGES, U. S. A.			
Type of Building	Requirements for New Buildings by Percentages		
	1929	1930	Change
Automotive	2.8	3.4	+ .6
Banks	2.9	2.7	— .2
Apartments	13.1	11.0	— 2.1
Apartment Hotels	4.8	4.2	— .6
Clubs, Fraternal, etc.	3.4	3.2	— .2
Community, Memorial	1.2	1.9	+ .7
Churches	4.2	4.3	+ .1
Dwellings (under \$20,000) ..	3.6	2.7	— .9
Dwellings (\$20,000 to \$50,000) ..	2.3	2.7	+ .4
Dwellings (over \$50,000) ..	1.9	2.2	+ .3
Hotels	6.7	7.8	+ 1.1
Hospitals	4.9	7.4	+ 2.5
Industrial	7.5	5.8	— 1.7
Office Buildings	13.5	13.5	—
Public Buildings	6.7	6.3	— .4
Schools	11.7	12.8	+ 1.1
Stores	3.4	3.3	— .1
Theatres	3.2	1.9	— 1.3
Welfare, Y.M.C.A. etc.	2.2	2.9	+ .7

used to meet demands of the Wall Street collapse. Thus this important channel of mortgage money is temporarily dammed and will re-establish itself only as savings and conservative investments mount again. But they will surely mount because the public has learned a lesson. The second obstacle is the fact

money. It cannot show the dramatic profits which the ticker tape has spelled out through this past period of blind speculation, but the building industry can and will compete with any line of legitimate investment or even speculative profit and it looks very much as though it is about to have its chance again.

signs of easier mortgage money since the Wall Street collapse.

2. That it will take the early part of 1930 for adjustments to clear away the obstacles already described as blocking the mortgage money channels.

3. That we may with some confidence expect much easier mortgage money conditions in the second half of 1930.

4. That there are a large number of building projects which will seek financing during 1930.

Basic Conditions Changing Building Industry

General business conditions are becoming more and more encouraging. The panic idea has already been discounted by the fact that hundreds of thousands of people have gone to work more seriously than ever to maintain personal and general prosperity. It is probably quite true that some industries will show an extensive falling off in business. Perhaps the demand in

NORTH ATLANTIC STATES

Type of Building	Requirements for New Buildings by Percentages		
	1929	1930	Change
Automotive	2.1	2.8	+ .7
Banks	2.7	1.9	— .6
Apartments	18.5	19.3	+ .8
Apartment Hotels	1.0	3.9	+2.9
Clubs, Fraternal, etc.	3.5	2.6	— .9
Community, Memorial	1.1	1.6	+ .5
Churches	2.8	2.7	— .1
Dwellings (under \$20,000) ..	4.2	2.0	—2.2
Dwellings (\$20,000 to \$50,000) ..	2.0	2.6	+ .6
Dwellings (over \$50,000) ..	2.2	2.3	+ .1
Hotels	4.8	4.7	— .1
Hospitals	5.6	9.6	+4.0
Industrial	6.6	3.5	—3.1
Office Buildings	12.3	14.9	+2.6
Public Buildings	9.4	5.2	—4.2
Schools	8.4	11.2	+2.8
Stores	4.0	4.4	+ .4
Theatres	3.2	1.3	—1.9
Welfare, Y.M.C.A. etc.	2.4	3.5	+1.1

that many mortgages coming due at this time are being called by mortgagees who wish to use the money to cover their own situations. These mortgages on existing buildings must be replaced and as a rule they take precedence over loans for new construction. These must be cleared out of the way and this readjustment has already begun.

It would seem obvious that there will be a great increase in the amount of money placed through mortgage channels. There is always a swelling tide of mortgage money after any great economic adjustment, but it will take time and patience before the last obstacles are cleared away and we reach again a normal condition.

A glance at the accompanying chart showing building activity during 1929 immediately reflects the influence of mortgage money in establishing the volume of building construction activity. The year 1929 would have represented a very large volume of construction business if its foundation of mortgage money had not been almost entirely removed. The building industry can not compete with high priced call

MIDDLE STATES

Type of Building	Requirements for New Buildings by Percentages		
	1929	1930	Change
Automotive	3.2	3.5	+ .3
Banks	3.2	3.0	— .2
Apartments	9.7	5.9	—3.8
Apartment Hotels	5.5	4.5	—1.0
Clubs, Fraternal, etc.	3.8	4.7	+ .9
Community, Memorial	1.0	1.6	+ .6
Churches	3.9	4.4	+ .5
Dwellings (under \$20,000) ..	2.3	2.5	+ .2
Dwellings (\$20,000 to \$50,000) ..	2.1	2.8	+ .7
Dwellings (over \$50,000) ..	1.4	2.1	+ .7
Hotels	5.7	5.4	— .3
Hospitals	4.1	5.8	+1.7
Industrial	8.7	8.7	—
Office Buildings	17.0	15.7	—1.3
Public Buildings	4.9	9.0	+4.1
Schools	14.4	13.7	— .7
Stores	3.1	2.7	— .4
Theatres	4.2	1.9	—2.3
Welfare, Y.M.C.A. etc.	1.8	2.1	+ .3

When we reflect upon the foregoing conditions and take into consideration the opinions of hundreds of individuals who are directly familiar with mortgage conditions, we can look forward with reasonable optimism to the financing of the 1930 construction schedule. Mortgage money will be available in proportions which will swell rapidly in the second half of 1930. The cross-section of these opinions can be summed up as follows:

1. That there have already been

1930 will be less for luxuries and more for practical improvements. The building industry will benefit rather than suffer from such a condition because, after all, the buildings of this country are not luxuries; they are practical machines developed for practical purposes.

It seems that there will unquestionably come a definite reduction in speculative building because the facilities for gambling of this nature will not be present. On the other

hand, legitimate building for profit to meet known demands may be expected to increase as financing becomes easier and cheaper.

In considering the possible building program of 1930 we must emphasize again the immeasurable factor which has been introduced suddenly into the picture. This is the great construction program fostered by the government and supported in theory at least by states and municipalities. President Hoover turned in a very natural manner to the construction industry as a means of stabilizing the business welfare of the American public. There exists today a tremendous demand for public buildings and civic improvements. There is great pressure being exerted for public utilities, for increased facilities and service. There is great need for better roads, bridges, transportation facilities and various other types of engineering projects which come within the scope and control of national, state and city officials. So definitely has this program been presented and so enthusiastically has it been supported that it cannot help but contribute a great volume of building activity to the totals of 1930.

Summing up the general situation, we find the following significant facts arrayed for consideration:

1. The general demand for new building construction is approximately the same as it was at the beginning of 1929.

2. The trend toward a far greater supply of mortgage money is very definite.

3. The deliberate program of construction which is being started by the government, by states and by municipalities will evidently assume very large proportions.

This combination of factors would seem to provide reasons for optimism regarding the building activities of 1930. It would seem that we can assume at least as much building construction during this new year as we had in 1929 and probably more. In fact, if mortgage money becomes really much easier and if the great schedules of public improvements are carried out,

it would seem to be quite within reason that 1930 might exceed all building construction years.

It is quite apparent that as mortgage money mounts again in volume it will be more scientifically handled and the natural result will be better quality in design and in the types of materials and equipment selected. We are to have better buildings regardless of type. First, because of a more intelligent demand on the part of the public, and second, because of the more scrutinized control of mortgage money.

There have been tremendous developments in the manufacturing side of the building industry. Not only have great capitalists become actively interested, but the very size of the industry has forced added vision, and together with an intricate combination of research and technical improvements, which is completely changing many of our construction methods, materials and equipment, some of the great basic divisions of the building industry, such as steel and lumber, are being forced to the development of hundreds of specialties for the building industry. There has been a tremendous increase in the application of engineering skill to the solution of building problems. All of these, while they require far greater study and more comprehensive understanding on the part of the architect, contribute in turn to the quality of the finished buildings. Good accounting is showing the fallacy of cheap construction. The costs of maintenance and depreciation are more thoroughly understood than ever before as factors which determine building investment profits.

In every direction it seems that forces are gathering which may show the year 1930 as an unusually active year for the construction industry and perhaps as the beginning of an interesting cycle of active years as the public turns again to mortgage financing as an outlet for its money and to buildings as important factors in maintaining the proper operation of commercial and community existence.

Details of Building Forecast

The detailed figures shown in the

accompanying tabulation indicate total construction activity, exclusive of public works, roads and utilities, of \$7,000,896,000 as compared with \$7,308,793,200 as forecast for the year 1929.

This tabulation is divided into six geographical areas of the United States and figures are shown in nineteen building classifications. These figures will serve to show proportionate building activity in each district of the country and in each of the building types.

Changes in Public Demand for Buildings

In establishing any forecast of building activities it is of definite interest to analyze the changes in public demand evidenced for the coming year as compared with that of a year ago. Some of the changes are quite significant and of great interest. In order to show this condition there will be found herewith detailed tabulations showing various public demands for various types of buildings in different sections of the United States. The figures in the tabulations represent the percentage of total building demand indicated for each type of building in the year 1929 as compared with the year 1930. The figures given under the column heading "Change" represent the change in percentage figures. For instance, in the column of national percentages the change shown for automotive buildings is plus .6. This figure is obtained by subtracting the 1929 figure of 2.8 from the 1930 figures of 3.4 and signifies that an apparent demand for automotive building in this country has increased almost one-fifth at the beginning of the year 1930 as compared with the beginning of the year 1929.

Some of these figures show startling changes in the public demand for new structures. In analyzing these figures it must be remembered that they apply primarily to the types of buildings which come under architectural design and supervision, but after all these reflect definitely the changing demand of the public for its buildings for 1930 as compared with the requirements of 1929.

You Killed the Goose

You did it. You furnace manufacturers killed the goose that laid its golden eggs in the laps of the furnace installers. You did it.

I am a furnace dealer. I buy my furnaces from a responsible furnace manufacturer. There was a time when I could make a profit in the furnace business, but you killed the goose that laid my golden egg.

I had a business. I felt that I was as respected a business man as any in the community. I had a nice store, a nice display room, a shop, a place to store my furnaces, salesmen out selling and money to pay for the goods that I bought.

You manufacturers killed my goose.

How did you do it? It is simple enough. Jim Brown, my head tinner, and I got into an argument one day over some little triviality, and Jim quit.

Jim had been working for me for years and he knew all the salesmen that called; in fact I had made it a point to see that he met them, so that Jim could get the advantage of all the information available.

Jim had received good wages from me for many years, but he had never saved much except to pay for his home and to furnish it in reasonably decent style.

But Jim quit, and when he quit he wrote to all these furnace salesmen who had been calling here, and as a result of his letters he had a number of offers to consign furnaces to him.

Consignment — for many a Godsend—for others the curse of the furnace business. Here is one reader's views. If you agree, or disagree, let us hear from you.

Jim was honest. He did not have any money, and everybody knew it. His credit was not good enough to justify shipment of a carload of furnaces, but those fellows who had been wanting my business, knowing there was a carload possibility in this field, agreed to consign Jim a carload of furnaces. Jim said he could store them safely in his barn and that he could make the haymow over into a shop, using the downstairs for storage and a garage for his automobile.

Now all Jim wanted out of this business was wages and he started out to compete with me. I soon found that he could buy furnaces just as cheaply as I could buy them. Perhaps I had been a little too trustful of the people with whom I had been doing business. It looked mighty like someone was willing to sell furnaces at a lower price than I could buy them.

Jim had no store, he had no established place of business, he had no overhead expense, he had no salesmen, he had no money on which he

had to earn a return and he did not want a salary for himself; all he wanted was wages.

Well, it is a long story, but put yourself up against it if you will and ask yourself what you would do under the circumstances—every job from \$20 to \$25 under me. Apparently the public considered his guaranty just as good as mine.

Jim and his consigned furnaces have cut very seriously into my capital. They have made it difficult for me to pay my bills; they have made me very unhappy; they have forced me to cut down on the quality of my installations; they have forced me to do slipshod work; they have forced me to cut every corner to meet price; they have forced me from the position of a prosperous business man to that of one who hates to meet his creditors.

It would not be so bad if Jim had found just one manufacturer who was willing to consign furnaces, but Jim told me there were dozens of them and that he could get any kind of furnace he wanted on a strictly consignment basis.

You manufacturers in the furnace business may wonder why it is that your industry stays off the main streets. You wonder why it is that there are so many poorly rated dealers in the furnace business.

Put the blame right where it belongs. Let it sit on your own desk a few days; let it play around your office; let it follow you home—think about it a while.

The first thing I want you to tell me is this: Does this policy of consignment furnaces do one bit of good to the furnace industry as a whole? Does it add one additional installation to the total number of installations made in the country? Does it add one bit to the demand for furnaces? Does it add to the number of houses built or the number of furnaces replaced?

What possible excuse is there for it, except that some weak-kneed in-
(Continued on page 35)

Construction of Pattern for Spiral Pipe, Riveted, Developed by Triangulation

A RECENT inquiry for a spiral pipe, riveted, can be worked out by triangulation.

The writer stated he had a diameter of 14 inches and inquired whether this 14-inch diameter had to be taken into account. The diameter of 14 inches does not matter, as that is a flexible item and can be made anything. The gauge of metal can be worked in straight strips up to possibly 14 or 12 gauge—some drifting will be needed; but it can be pulled into shape all right. For $\frac{1}{8}$ -inch plate or heavier, the difference in thickness must be provided, and the development made by triangulation. That is a tedious process, requiring considerable care and accuracy, or more trouble will be borrowed than the drifting of straight strips will make.

Now the spiral works on the 45-degree angle—so the pattern can be

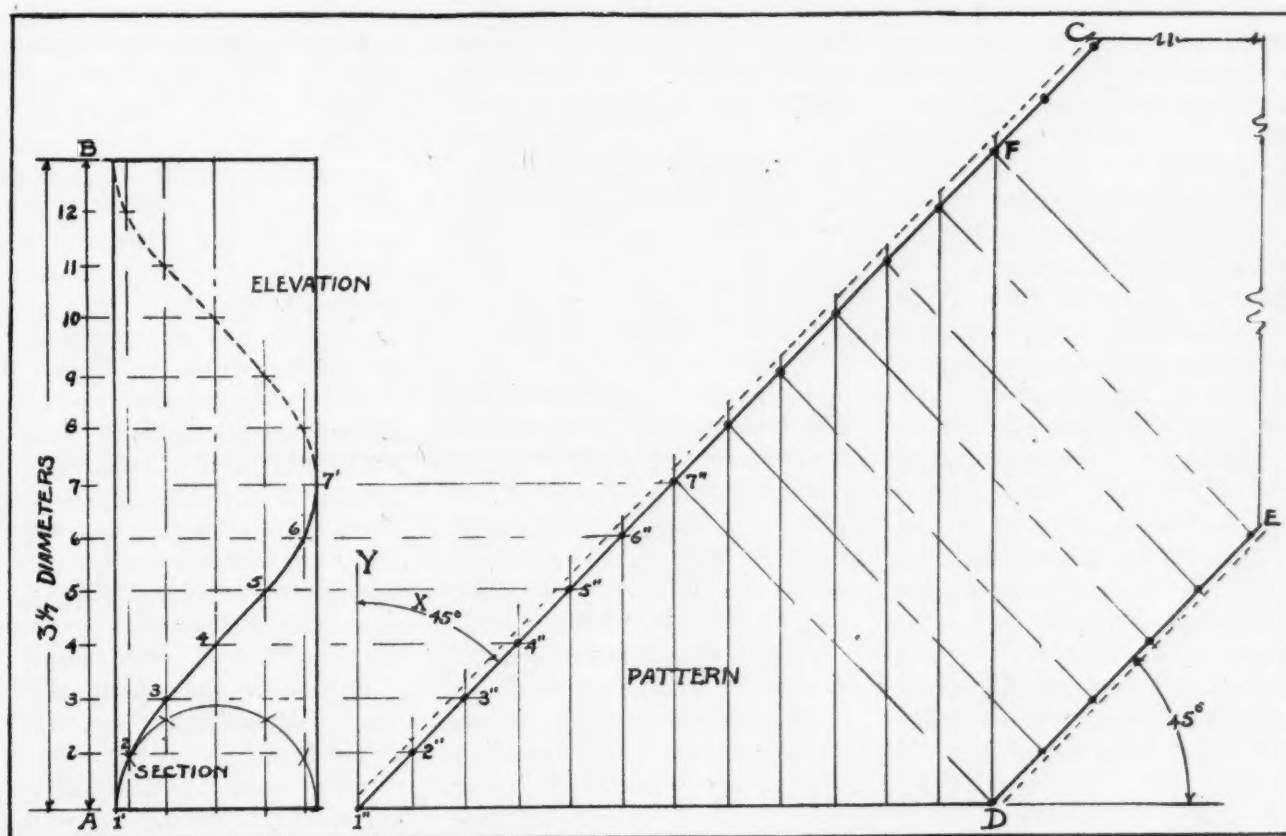
laid out very simply—nothing much to it. Thus we measure the girth of the pipe as 1"-D, which will form the bottom miter of pipe, or straight ends. Then at each end as at 1" and D, use a 45-degree triangle and extend these seam lines as 1"-C and D-E. You can divide the line 1"-F in as many equal spaces as you wish rivets in the spiral circumference, and then project these points to line D-E, so they are exactly perpendicular to 1"-C. Thus 7" must exactly correspond with D, and be exactly 90 degrees, or perpendicular, while the rest can be marked off toward the end of the strip.

The spiral line 1"-C must be on a 45-degree line, as the angle X indicates, or the points 7" and D will not match, and this will require the special location of rivet holes along the line D-E. If you wish to do this on, then you can make the slope

1"-C anything you wish, and draw D-E parallel to it, and the problem will work itself out. The elevation we show is not needed, and is drawn to further demonstrate the diameter relation with a 45-degree spiral. If you have a definite pitch develop the spiral and project the pattern much as shown.

But if you only have the diameter to work from and wish to develop the spiral pattern to correspond for a 45-degree volute, then you must recall that the circumference of a pipe is found by saving diameter times 3.1416, or $D \times 3\frac{1}{7}$ th. This is the same as circumference divided by 3.1416, which will give the diameter. Hence we see that the pitch A-B of one revolution of spiral is equal to the circumference 1"-D. So if these facts are associated together there will be no

(Continued on page 41)



Manufacturers and Jobbers Show New Equipment at Milwaukee

BEGINNING the same week as the convention of the Wisconsin sheet metal men, the Wisconsin Retail Hardware Association opened an imposing exhibit in the Milwaukee auditorium. The large building was jammed full of exhibits. Prominent among the booths were the exhibits of manufacturers and jobbers operating in the warm air furnace and sheet metal fields. A trip through the exhibit hall showed that the following friends of ours had their products on display:

Dowagiac Steel Furnace Company, Dowagiac, Michigan. A steel furnace was displayed, with the booth in charge of W. E. Mills and P. C. McManey.

Barnes Metal Products Company, Chicago. A complete line of conductor pipe, eave troughs, ridge roll, etc.. They also displayed elbows, mitres, ends, etc., made from galvanized steel, copper bearing metal, Toncan, Armco, copper and zinc. C. G. Siebert and W. J. Ahern were in charge.

Follansbee Brothers Company, Milwaukee. This exhibit contained a line of sheet metal, tin plate and sheet metal products. H. H. Wherry, C. Baumann, Walter Duce and Jim Harding were running the exhibit.

Premier Warm Air Heater Company, Dowagiac, Michigan. One shiny 1930 Proven Premier furnace occupied this booth. Joe Worth and Richard M. Judd explained the Premier features to any visitor stopping in front of the booth.

Brillion Furnace Company, Brillion, Wisconsin. A large Brillion furnace and one of the new Brillion cleaners stood in this booth. The cleaner was usually the center of an interested group of visitors.

The three men in charge of the booth—Mando Airens, George E. Murphy and Charles Mertle—stated that cleaning seemed to occupy a great deal of attention in the minds of furnace men.

Waterman-Waterbury Company, Minneapolis, Minn. W. F. Keller and A. G. Clemens had on display a Seamless and a Radio furnace and a display of room heaters and chemical toilets.

The Excelsior Steel Furnace Company, Chicago. Furnaces and fittings, furnace pipe and fittings, stovepipe, elbows, registers, wood faces for registers and other accessories were placed on tables and the floor of the booth. Arthur B. Glessner, Secretary of the company, was in charge of the exhibit. He was assisted by C. E. Glessner, Vice President, and John Brooks, manager of the furnace department.

R. J. Schwab and Sons Company, Milwaukee. The company had on display a Gilt Edge Furnace and a Gilt Edge Fireside furnace. The booth also contained some Rock Island registers. Alfred G. Pomering, Larry Mills, Harry A. Schlegel, H. E. Schwab and J. J. Burgess attended to the questions of visitors.

Bergstrom Manufacturing Company, Neenah, Wis. Bergstrom furnaces, Kwiklok fittings and National registers made up this company's display. Representing the company were C. S. Youngs, J. J. Defret, C. S. Chapman, Elmer Radmer and F. A. Sutherland.

International Heater Company, Chicago. An Economy Blue Front furnace and an Economy Jacketed Boiler attracted many visitors to this exhibit. J. Reid Mackin, E. M. Tyler, J. M. Beech and A. J. Beilfuss conducted the exhibit.

Minneapolis-Honeywell Regulator Company, Minneapolis. The new Jewell Junior regulator selling for \$35.95 was the main attraction of this part of the floor. In addition to the Junior, the Standard regulator was shown, together with different types of motors. L. E. Slawson, F. W. Dilger and W. H. Meneilley represented the company.

Tuttle and Bailey Manufacturing Company, Chicago. The diversified line of warm air registers manufactured by this company were displayed at the show. Several of the new finishes were shown and caused much comment. Dave Farquhar and Tom Maddox conducted the display.

Moore Brothers Company, Joliet, Ill. One furnace, one range and one home heater were shown by Lewis Moore, Jr., and Ira J. Kuhnter.

Meyers Fuel Saver Company, Janesville, Wis. The booth of this company attracted much attention. Two oil or gas furnaces were shown connected up. There was also one coal or oil fuel saver and one gas-operating furnace bearing the approval of the A. G. A. Roy Meyers, J. M. Ceampion and N. B. Francis reported that every job shown in the booth was sold.

Richardson and Boynton Company, Chicago. One Superior and one Perfect furnace occupied the main part of the booth. Quite as much a drawing card, however, were the Silent fan and the mechanical heater units. D. E. Cummings, Geo. P. Quigalieu and Chas. R. Guenther held open house.

Milwaukee Corrugating Company, Milwaukee. One of the largest booths of the main hall contained a display of sheet metal products made by Milwaukee. A section of a house showing new roofing

units and a wide range of register and furnace pipe and fittings completed the exhibit. Most of the Milwaukee sales force must have been in attendance because the following were ready to serve us: S. H. Schneider, A. H. Schmelzer, Tom Pykett, A. T. Swan, Sam Rice, Lew Soper, R. S. Schmieder and W. P. Schwam.

Mueller Furnace Company, Milwaukee. One of the most complete lines of furnaces in the show was demonstrated by Mueller. There was a Gas Era furnace and boiler, a Self Cleaning furnace, a

Return Flue furnace, a steel furnace and a selection of stack, pipe and registers. H. P. Mueller, L. Elmer, Walter Melius, Herb Schroeder, Dave Carlson and Ernie Liessman did the talking about the equipment.

American Foundry and Furnace Company, Bloomington, Ill. One Lincoln furnace was shown and when we went through the show there was no representative in sight.

Lennox Furnace Company, Marshalltown, Iowa. Roy Wasson had under his wing one steel furnace which he was showing to anyone who stopped to admire the job.

Illinois Hardware Show Contains Good Exhibits

THE Illinois Retail Hardware Association convention held in Chicago at the Hotel Sherman on February 11, 12 and 13 had a number of exhibits of firms in the warm air furnace and sheet metal fields. Among the exhibitors having displays were:

Wheeling Corrugating Company—Chicago. An attractive display of Cop-R-Loy Channeledrain roofing and Cop-R-Loy fence. A. E. Ketcham, A. J. Madson, E. R. Wagner, L. W. Hannon and O. F. Faber were in charge of the booth.

The Fox Furnace Company—Elyria, Ohio. This company had quite a display of their heating products. A Sunbeam Warm Air furnace, and Sunbeam Cabinet heaters were well received by visitors. E. A. Grange and Maurice Klett had charge of the booth.

H. M. Sheer Company—Quincy, Ill. The display of Sheer Comfort Heat Regulator, Furnace Blower, and Humidifier attracted quite a bit of attention. There seems to be a growing interest in the field of accessories which make furnace handling easier and less trouble. S. A. Whitten was in charge.

The A. C. Manufacturing Company—Pontiac, Ill. The line of A-C heat booster fans were exhibited by D. R. Copes, E. F. Daugherty and E. G. Capes.

Milwaukee Corrugating Company—Milwaukee. The Milwaukee booth had an extensive line of products manufactured by the company. W. F. Waller, L. H. Soper, Fred Naylor, C. A. Maroney, Wm. Peterson, E. G. Holly, H. A. Parkin and L. R. Wise represented the company.

International Heater Company—Chicago. An Economy Blue Front furnace was shown by T. Reid Mackin, Chicago manager, J. M. Beech, Frank Fraser, Frank King and John Smith.

Barnes Metal Products Company—Chicago. An attractive display of elbows, mitres, ends and outlets, Fitrite leaders, were shown by Charles L. Seibert, W. J. Ahern and E. T. Barnes.

Minneapolis-Honeywell Regulator Company—Minneapolis. The standard line and the new Junior line of regulators were shown. The new Junior model, selling at a sensationally low price, was the center of much interest. F. W. Dilger and L. E. Slawson were in charge of the display.

The Thatcher Company—Newark, N. J. An exhibit of the furnaces manufactured by the company were displayed by Howard Perkinson, T. B. Emery, H. Kocker and George Marshall.

(Continued on Page 41)

Charles E. Hall, Dies

Charles Edward Hall, 56 years old, former president of the Indianapolis Rotary Club and widely-known hardware merchant, died last week in the Methodist hospital after an illness of four months.

Mr. Hall was born in Oxford and went with his parents to Kokomo while a child. He came to Indian-



Charles E. Hall

apolis in 1891 and was employed for a time in a bank.

After entrance into the hardware business, he became president of the Hall Hardware Company until organization of the Hall-Neal Furnace Company. He was president of the latter concern at the time of his death, having held the position ten years. He was active in state and national hardware circles and was treasurer of the Indiana Retail Hardware Association twenty years. He also had been president of the National Warm Air Heating Association.

Mr. Hall also was active in civic and fraternal life. He was president of the Rotary Club in 1914, and was a member of the Tabernacle Presbyterian Church, Mystic Tie Lodge No. 685, F. and A. M., the Scottish Rite and Murat Temple. He was a member of the board of governors of the Indianapolis Board of Trade.

Sheet Metal and Ventilators Solve Corrosion and Fire Problems

ALl through the cotton growing states there has been wide use made of sheet metal for roofing and siding on cotton warehouses and compress buildings. In these states where winter weather is unknown and where protection against rain, wind and storm are more necessary than protection against cold, sheet metal has been the standard protection material.

An example of this type of building is the recently completed ware-

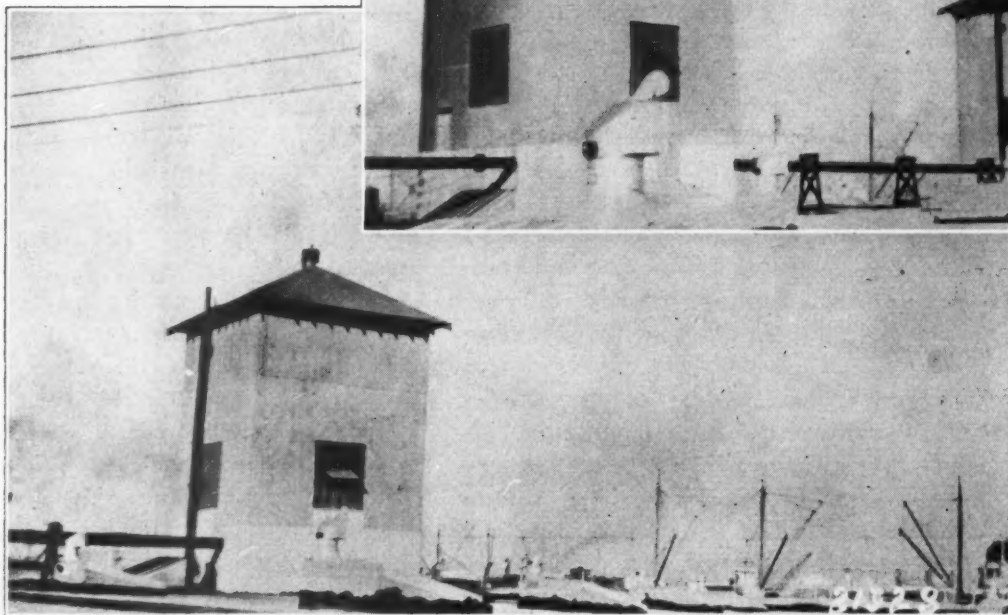
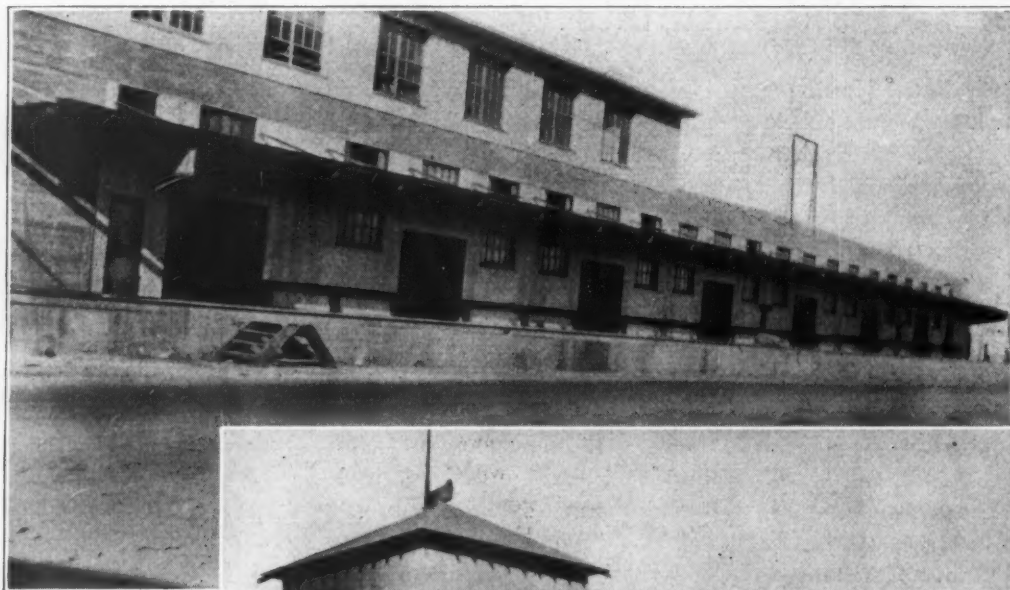
house of the Los Angeles Cotton Compress Company. The structure is a large one and was designed and built under the supervision of an engineer, Robert J. Cummins, one of the best known cotton compress designers and engineers in the country.

The building is over 1,500 feet long and on top of the roof two pent houses also of sheet metal add to the size. The front of the structure is two story while the back sec-

tion is a one story building used for storage and handling of cotton.

An interesting feature of the building is that it stands close to the ocean and is, therefore, subject to the chemical action of salt air. In selecting a material for the building, resistance to salt air corrosion had to be taken into consideration. Armco Ingot Iron sheets was selected.

In addition to the corrugated sheeting on the roof and sides more



Above—A view of the sheet metal siding and canopy

Center—The sheet metal covered pent houses on the roof

Below—Some of the 70 skylights and 60 ventilators which furnish light and exhaust the dust laden air

than 4,000 feet of special flashing, gutters and downspouts were used.

Many Skylights

There are 70 skylights around the roof. These skylights were made up by the sheet metal contractor on the job. The skylights are so placed as to distribute light uniformly throughout the second floor and the store room. Had the contractor and engineer not made use of metal skylights, hundreds of electric lights would have been necessary.

Another interesting feature of the job is the use of sixty 14-inch ventilators. These ventilators are made by the Swartwout Company of Cleveland. These ventilators serve two important functions. In the first place they insure a continuous circulation of air inside the building. In hot weather this circulation is absolutely necessary for the comfort of the workers and for the exhaust of excessively high temperatures in the peak of the roof.

Eliminate Fire Danger

In a cotton compress there is also danger from spontaneous combustion. In the process of baling cotton there is a large amount of suspended dust and fine material in the air. If the air inside the building was permitted to stand stagnant the amount of this dust and suspended matter would soon reach such proportions as to render combustion hazard extremely likely. By placing these ventilators over the roof this laden air is exhausted from the building and the fire danger almost eliminated.

In putting the metal sheets on the building the contractor used the Widman double grip fasteners. These fasteners are a new product and are designed to make laying sheets a quick and easy job. The pictures accompanying the article show views of the ventilators, the exterior of the building and the roof with its pent houses.

In the whole job more than 21 tons of 20, 22, 24, and 26 gauge sheets were used. The contractor who did the job is the Ace Sheet Metal Works, 4526 South Vernon Ave., Los Angeles.

Organize Committee to Encourage Building

A permanent committee to encourage building activities, in support of President Hoover's business stability program, is being organized by the construction and allied industries.

This action was authorized at a national building conference held at Washington during the week, attended by more than one hundred representatives of the various industries interested in the construction field.

The building conference was held as a part of the movement now under way by the National Business Survey Conference looking to a stabilization of business following the stock market decline. It was called by Julius H. Barnes, chairman of the Business Survey Conference, at the request of trade associations within the construction and building field.

Fenton B. Turck, Jr., vice-president of the American Radiator Company, New York, was named chairman of the permanent committee, and Homer S. Sackett, director of the Home Modernization Bureau of the National Building Industries, Chicago, was appointed secretary. The committee, which it is expected will be completed within thirty days, will be composed of representatives of the key industries.

As outlined at the conference, the program of the permanent committee will be:

1. To present to the public through the newspapers and other advertising means information showing that conditions are especially favorable now to carry out construction plans.

2. To make a survey of proposed new building, remodeling and replacement projects.

3. To facilitate the financing of building projects.

One of the most encouraging developments of the conference was a report by H. F. Cellarius, secretary, the United States League of Build-

ing and Loans Association, which showed that while funds available for construction loans were scarce sixty and even thirty days ago, the situation in this regard has materially improved since the first of the year. Added to this were assurances from other sources that money was becoming more readily available for building purposes. The conference authorized the appointment of a committee to study the whole of building financing.

Secretary of Commerce R. P. Lamont told the meeting that more than seven billion dollars will be expended by federal, state and local governments and major industrial groups in construction and replacements in 1930. Mr. Lamont made the point that while this great sum was only slightly in excess of expenditures in previous years, the mere fact that it was larger instead of smaller indicated that the year would be a prosperous one.

The conference voted to recommend to the various industries represented that a fund of half a million dollars be raised for group advertising and promotion, independent of individual advertising. It was stated at the conference that various lumber groups were prepared to pledge between seventy and ninety thousand dollars for this purpose contingent upon supplementary contributions by other groups.

It is hoped to have the government assist in making a quick survey of the building requirements in practically every community in the country. Through the Post Office, the Bureau of the Census, the Division of Building and Housing of the U. S. Department of Commerce and similar agencies it is believed that enough preliminary data to furnish a working basis can be gathered in a short while.

Destructive competitive advertising was singled out as an existing evil that should be stopped. Several
(Concluded on Page 35)



The office and shop of Fred Hauer are housed in a modern store building located on a main downtown street

IN THIS day and age every product has to be merchandised. It makes no difference whether the product is an automobile, a radio or a warm air furnace. The public is not spending money for new furnaces or even repairs unless they are sold on the need for new equipment.

And in spite of this very evident requirement in today's selling of warm air furnaces, we hear a lot of contractors and dealers say, "Well, what is this merchandising?"

Let us cite the business of Fred Hauer of Peoria, Illinois. Fred has been doing warm air furnace work in Peoria for more than twenty years. Three years ago he opened his own shop and sales room. He had a wide acquaintanceship among home owners. He had done their repair and replacement work for years—yet a new man in business had many obstacles to overcome before he could count his business successful.

What Fred Hauer did and how he worked out those business methods which have made him one of

Sell Warm Air Heat, the Firm, the Service—T

the leading heating men in Peoria tells the story of merchandising in all its ramifications.

He opened a new shop. Not on a side street or in an old barn, but right on one of the main streets. And he picked a corner, too, for he understood the value of being in a location where customers could easily find the shop and where his display room could work for him.

The first thing he did was pick out the lines of furnaces he wanted to handle. He did not choose the cheapest line of furnaces figuring thereby he could make a wider margin of profit or give himself a

margin with which to meet stiff competitive prices.

Fred Hauer did not do this. He chose a line of high priced furnaces; a line that enjoyed a splendid reputation; a line he knew would be backed up and supported by the manufacturer. He intended to build his business on quality and expected to give every customer a good job for the money spent.

His Mailing List

Then he had to go out and build up his business. First he needed a list of prospects. Now any list he might choose to work with would already have been customers of one

A lot of discussion is heard these days about merchandising. What is it? In plain language it is selling service, firm, reputation—but not just furnaces. Fred Hauer has worked out a system that works 98%. Read how he does it and apply his system to your business.

FRED HAUER COMPANY
 Warm Air Furnaces
 Sheet Metal Contractors
 802 Main Street
 Peoria - Illinois



LET US VACUUM CLEAN YOUR FURNACE.

All heating systems are dirty because air itself contains dust particles and, when circulated by any heating system, causes dirt deposits. Our special furnace vacuum cleaner cleans out the warm air and cold air pipes, removing the accumulation of dust, dirt and lint and making your heating system clean, so that it will circulate clean, pure, fresh air for your next winter.

You can save money by having your furnace cleaned and repaired NOW, as you can get better service in the summer than in the fall and winter.

We are well equipped to clean or repair any make of Warm Air Furnace. Our price for cleaning a furnace is \$4.00, and 50c for each warm air pipe or cold air return.

Soot and ashes accumulate in the smoke pipe and cause it to rust out. Have it cleaned NOW and possibly avoid buying repairs. Check the enclosed post card and mail today.

Yours truly,
FRED HAUER & COMPANY,
 By.....

FH/B



That's Merchandising

of many other furnace dealers. Probably many of the list did not need or did not think they needed furnace repair or replacement work. The job was to get them to know Fred Hauer and to get them into the notion that they needed his services.

So he took the telephone book and made a list of names. These were worked into districts. All the house owners in a certain block were bunched together. These names and addresses were put on cards, one prospect to a card. Then a young man was hired to take these cards by districts and personally

call on the names. This young man was not a high powered salesman. His job was to call on the owner, find out what make of furnace was in the basement, ascertain its age, find out if it was working satisfactorily and if possible make a survey of its condition.

Now this last might seem pretty difficult. But before the young man went out, Mr. Hauer gave him some preliminary instructions. These instructions were that the owner was to be told that the Fred Hauer company was in business to serve the owner of the furnace. He was to explain that he was not there to

get a job and that he would not even quote prices on work. He was to tell the customer that he would like to see the furnace, he would like to know how it worked and that if there was any complaint Mr. Hauer would be glad to call and quote prices on the necessary work.

Because of the frankness of the solicitation the plan worked 100 per cent. Home owners who would not listen to a salesman trying to sell a new furnace were willing to let the solicitor look their plant over. They understood that they were not being asked to spend money, but that if any work was needed the new firm was prepared to render satisfactory service.

Uses Direct Mail

The filled-out cards were returned to the office and filed by district. If quotations were desired Mr. Hauer or a qualified estimator was sent out after a telephone call made sure that a time to call could be set. If there was no immediate request for a call their name was put on a list to receive direct mail material. This material is in the

form of the four-page letter shown with this article. This letter was personally signed. An attached card made it convenient for the prospect to ask for prices, for a salesman or for additional information. If the card came back it was immediately followed up.

The first year a few hundred cards and letters were sent out. In 1929 more than 3,000 letters and cards were mailed. This indicates the success obtained through this form of direct mail solicitation. Filling out the letters and the cards was not a full time job. The stenographer in the office filled out and mailed the letters during spare time or whenever a sufficient number of names were prepared ahead to warrant mailing. In addition the seasons of the year were closely followed. During the summer months cleaning was played up. During the heating season repair work, calls for service in case the furnace should break down and so on

were stressed. In this way a fresh appeal was always possible or a new angle given an old story.

Furnace Cleaning Pays

Furnace cleaning work has paid for itself many times over. Early in his work Mr. Hauer found that a cleaning job was not the end of the business transaction. In fact he found that the cleaning was only the beginning of a profitable relationship. This profitable repair work was not built on a hit or miss basis. The market was carefully studied. Prices were set to return some profit even though the cleaning was the end of the transaction, but the cleaning was designed to make additional work for the firm.

This cleaning work is done with a small portable cleaner. A big truck cleaner was out of the question at first and the small cleaner has proved so satisfactory that it has been continued. The entire cleaning operation has been built around the ease of operation and

the personal element of the small cleaner. The workmen were trained to do a thorough job and they were trained to do the job in such a way that each job was an advertisement for the firm. This workman advertising is a subtle thing. Surly workmen, dirty workmen, careless workmen are not tolerated, for investigation has shown that such men destroy more profitable relationships than they can possibly create.

Carefulness Is Demanded

The cleaning operation was carefully worked out. Showmanship was made a part of the job and the results have been splendid. For example, when the men go up stairs to clean out the cold air returns or the registers or the warm air pipes they put on a pair of canvas, rubber soled shoes. And these sneakers are clean. Before the register or the grille is removed, plenty of clean newspapers are spread over the floor. Hands are not permitted



The interior of the Hauer sales room is businesslike and efficiently arranged. Mr. Hauer is the man standing at the right

to touch the walls and units are removed so that they are not broken, chipped or bent out of shape. The whole operation of cleaning is so staged that the most finicky housewife feels the workmen are taking as good care of her furnace and her house as she would herself. Results? Well the black figures in the books seem to show that this careful workmanship has returned handsome dividends.

In the basement the men work as quickly as possible and use the same care. Papers and canvas covers are spread to catch the dirt, soot and ashes. Equipment is handled with care, but any faulty piece is examined carefully for defects. The workmen are trained to be salesmen insofar as the furnace is concerned. Let us suppose that the joint in the firepot has lost some of its cement. The furnace is opened so that the housewife can see for herself. The workmen explain how dangerous this condition is. They inquire if the housewife has not noticed odors or smoke coming out of the registers and upon verification demonstrate how this occurs. Not one housewife out of fifty can reasonably say she doesn't think there is danger or that a repair ought to be put off under these conditions.

The workmen are instructed not to press the sales of new parts or repairs. If the owner seems hesitant they fill out a report stating just what is the matter and file the report with the office. This report is followed by a personal call at which time repair work is really stressed. This procedure has eliminated the hesitancy often encountered where the workmen are too anxious to make more work with the result that the owner may think that the workmen knocked the cement out to make work or that their information on danger is not well founded.

Letters of Recommendation

Every satisfactory job is solicited for a letter of recommendation. The letter is not emphasized too strongly, but where a customer is so pleased that voluntary praise is given the workmen or the firm

the matter of sending in a letter is brought up. The uses these letters are put to vary. The most important use is as a file of recommendations which has now assumed such proportions that no matter what the section of the city the solicitors are working in the office has a letter from a satisfied customer in the district and today a letter from someone in practically every block. That kind of letter file is worth money.

Every job must be satisfactory. Cleaning must be so thorough that the owner can't find dirt or ashes or soot or scale in his plant should he choose to tear down the whole plant and examine it piece by piece. These jobs are guaranteed and so well have the workmen been trained that there has been only a few cases of poor workmanship.

Fred Hauer's whole business has been built around the idea of selling the firm. He doesn't sell furnaces or cleaning or parts, but he sells Fred Hauer and Fred Hauer's way of doing business. New furnaces are sold and the type of furnace handled is talked up, but this all comes in the last part of the sales argument. Service, the firm, satisfaction, reputation have formed a new combine. Furnaces and parts are only the visible mediums of that combination. New furnaces, replacements, parts, are not the sale for Fred Hauer, but are the results which come from application of the idea of selling service and firm.

That method of selling is merchandising.

(Concluded from Page 21)

Reinke, Milwaukee.

Third Vice-president, Geo. Bischoff, Marinette.

Fourth Vice-president, Nic Ordning, Sheboygan.

Fifth Vice-president, Geo. C. Peterson, Manitowoc.

Sixth Vice-president, Chas. Goldstone, Menominee.

The ladies attending the convention were provided with amusement by the entertainment committee consisting of the Mesdames Goethel, Biersach, Reinke and Tolg.

(Concluded from page 31)

members of the conference pointed to the discouraging psychology that is raised in the mind of a prospective builder when he sees one industrial group calling attention to the alleged inferiority of materials produced by competitors.

The conference was called by Julius H. Barnes at the request of certain groups and was held at the United States Chamber of Commerce Building.

Representatives from our field attending were:

National Association of Sheet Metal Contractors of the U. S.—W. C. Markle, secretary, Pittsburgh; John A. Pierpoint, Washington, D. C.

National Warm Air Heating Association—W. G. Wise, The Wise Furnace Company, Akron, Ohio.

(Concluded from page 26)

dividual wanted to beat his competitor in a game of salesmanship and found it easier to do so by the back door than by the front door.

You manufacturers attend your association meetings and talk about better installations. You talk about the Standard Code. You talk about credits and all that kind of stuff. Why don't you strike at the heart of this thing and stop consignments and some other unbusinesslike practices that you know exist?

The question is: Do you want the furnace business to continue to lie in the back alley like a dead goose, or do you want to bring this profitable bird back to life?

It is in your hands.

ONE OF THEM.

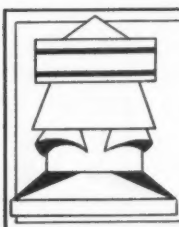
(The Geese)

Just Like the Furnace Biz.

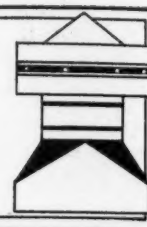
"Yassah," said old Link, "business very good. Done bought a pig fo' ten dollars, traded pig fo' a barrer, barrer fo' a calf, calf fo' a bicycle, and sol' de bicycle fo' ten dollars!"

"But yo' don' make nothin', Link!"

"Sho 'nough, but look at de business ah been doin'."



GRAVITY EXHAUST VENTILATION



Barn Ventilation

METHODS of installing barn ventilation vary in different parts of the country. These variations are due primarily to differences in climate which necessitate different types of barn construction. The variations are also due to diversity of farm products and barn usage.

In general, barn ventilation can be said to serve three purposes. First is cooling, made necessary by hot summer temperatures. Second is elimination of spontaneous combustion hazard, which varies with usage and storage design. Third is removal of foul air emanating from the lungs and bodies of stock.

Cooling is accomplished by the simple method of removing the superheated air from the roof space. The air is removed through a gravity ventilator installed on the comb of the roof and opening through the roof directly into the space below. Either a stationary or rotary type ventilator or more than one ventilator of either stationary or rotary type can be used. If more than one ventilator is used, an effect of symmetry can be gained by using three ventilators, a large one in the center and a small one at each end.

Spontaneous combustion is usually caused by the heating of fine dust or inflammable gases. Just when and why these ignite I will leave to the combustion expert, but barn fires are so common that any doubt of the accuracy of the claim of spontaneous ignition can be ignored. Removal of dangerous dust or gas is handled in the same way and at the same time as ventilation for cooling. Any ventilation which withdraws air from the extreme top of the roof space ejects both heat and dust.

The removal of foul air emanat-

This Problem

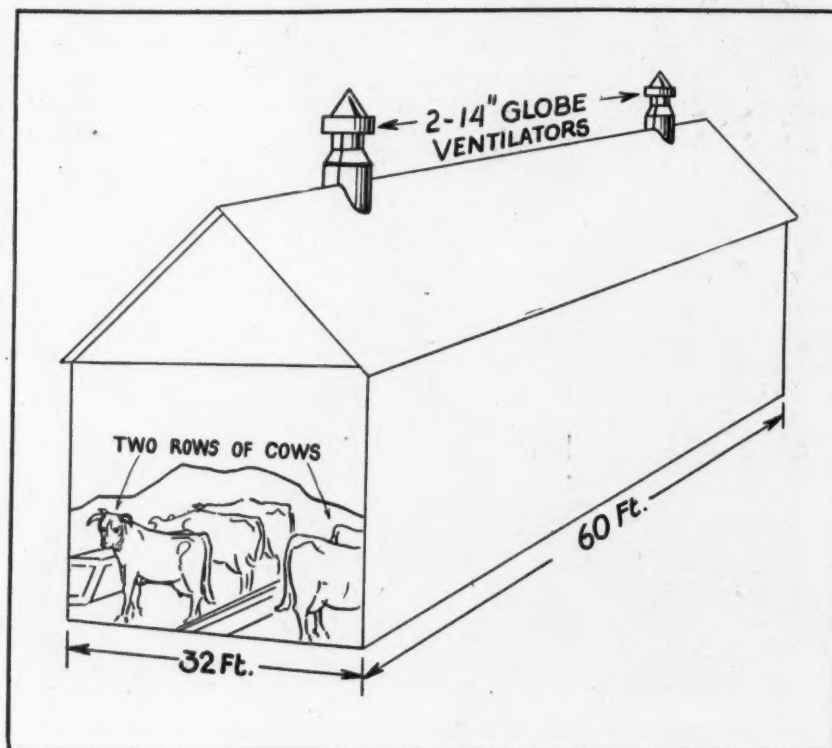
In the February 1 issue we ran a problem on barn ventilation. We invited readers to assist the writer of the letter. In response Paul R. Jordan has sent us this very fine answer. Mr. Jordan is a ventilating engineer of wide acquaintance and experience. He conducts his own business, The Paul R. Jordan Company, Indianapolis, specializing in the manufacture of ventilating equipment. Not only has Mr. Jordan answered the problem, but he has given some very pertinent facts on barn ventilation in general. The article is worth money to any sheet metal man operating in a rural district.

ing from the lungs and bodies of stock is generally considered acute

only in instances where the barns are fairly tight and where pneumonia and other serious ailments call attention to lack of proper ventilation. It is certain that proper barn ventilation will not only help to avoid disease and sickness of stock but will increase their producing power. I have even read that proper ventilation will cut down the consumption of food.

The removal of foul air is not as simple a problem as cooling or eliminating danger of spontaneous combustion, because it entails not only removal of the foul air, but the bringing in of an equal amount of fresh air from the outside. In order to get satisfactory results the air change must be done without chilling the stock or causing floor drafts.

One vital element of consideration should be conservation of heat, as stock barns are dependent solely on animal heat for interior warmth. So far as the weather is concerned this is taken care of in cold climates by building tight barns with well



insulated walls. Of course hay overhead is a very good insulator, both against heat in summer and cold in winter. However, the tighter the barn, the more the intake of fresh air becomes a matter for special consideration. If air seeps in around doors and windows and through possible wall cracks in sufficient quantities to replace the exhausted air, there is no use figuring out any special intake, because no matter how undesirable this seepage may be from the standpoint of distribution you will have it anyhow. If, however, the barn is tight, the intake can be controlled both as to volume and as to placing.

Proper placement of the incoming air is most important. The incoming air current should be directed at such a height that it will diffuse well above the breathing zone before filtering down to the breathing level. Handled this way, the fresh air will also be tempered before it reaches the floor. Outside air direction and velocity have a tendency to affect the volume of incoming current so that at times it does not come in with sufficient velocity to carry it high enough, while at other times it comes in so hard that it hits the ceiling and is deflected back to the floor where it causes a cold spot and a floor draft. The only way to control this is with an automatic regulating valve, which is, unfortunately, a patented device.

It is a theorem of heating that the only way to conserve heat is to exhaust from the floor, and the only way to get rid of heat is to exhaust from the ceiling or the roof as the case may be. Therefore for the best results in heat conservation exhaust flues should be run from close to the floor line and connected directly with the ventilators on the roof. To make use of positive results, a rotary type of ventilator should be used.

Good results, as far as ventilation is concerned, but without the best elements in heat conservation, can be obtained by exhausting air from above the breathing zone. In some cases no ducts at all are used and the entire exhaust ventilation is made up of one or more ventilators

installed on the comb of the roof opening directly into the roof space or haymow and connected with the stock floor only by the usual openings for the handling of feed. The success of this kind of an arrangement is dependent on the severity of the weather. It is true that these incomplete systems are often found where the winters are severe, but not on the barns of wise stockmen who understand that the comfort of their stock is reflected on their financial returns.

Where a flue is connected to the ventilator a flue door should be arranged at the top just below the roof. This door can be opened up during the summer months when ventilation is taken care of by open doors and windows, and the ventilator thus used for heat removal.

As to capacities, a 20-inch rotary

ventilator will take care of ventilation for up to 25 head of stock; a 24-inch ventilator will take care of up to 36 head; a 36-inch ventilator will take care of up to 56 head, and a 36-inch ventilator will take care of up to 81 head. (In stationary ventilators, somewhat larger sizes are necessary.) This refers to winter ventilation. Intake capacities should be figured out to match up with the exhaust capacity, whatever it is. In case of the automatic fresh air intake, the manufacturer's recommendations should be used.

As a matter of fact it is advisable to work with the manufacturer on any phase of barn ventilation. Conditions are so varied, the problems so complicated and experience so valuable that the installer who goes it alone will too frequently run into trouble.

And Here's Another Solution

MR. VIESTRA'S problem in barn ventilation seems to have attracted considerable attention. A reader who signs himself R. F. C., living in Dayton, Ohio, considers the problem worth study and writes as follows:

I submit this solution to Mr. Viestra's problem on barn ventilation, which I think will take care of the difficulty. Although Mr. Viestra did not state the exact number of cows kept in the barn, I base my solution on 24 cattle. The method used here may be used for the exact number of cattle.

Taking the fresh air at a relative humidity of 65 per cent or less, the average cow requires 3,953 cubic feet of air per hour per head.

The average velocity through a gravity system is 250 feet per minute without the aid of heat other than that which comes from the animals.

Assuming 24 head of cattle are kept in the barn, the correct change of air to eliminate odor and mois-

ture and to keep the barn in a more uniform temperature is:

24 head of cattle X 3,953 cu. ft.
per head per hour is 94,872
cu. ft. per hour.

The assumed velocity is 250 feet per minute, or 15,000 feet per hour. Dividing 94,872 cubic feet per hour by 15,000 cubic feet per hour: This gives the number of square feet of air per hour in this case 6,325 square feet, of 910 square inches or 911 square inches.

If one roof ventilator is used the size would be a pipe having an equal area in square inches, or a 35-inch ventilator head with a 32-inch by 32-inch vent stack connected to it. Or it could have any number of vent stacks so long as the combined area of 911 square inches was maintained. By using more than one vent stack more than one roof ventilator can be used.

The distribution of the stacks can be arranged to suit the construction of the barn and the roof venti-

(Continued on page 41)



ASSOCIATION ACTIVITIES

Sheet Metal League of Youngstown, Ohio, Elects 1930 Officers

At the annual meeting held Monday, February 3rd, the following trustees for the Sheet Metal League of Youngstown were elected:

Sam Rukenbrod, Frank Ockerman, Jacob Till.

The new officers for the year 1930 are:

L. W. Nichols—President.
J. V. McClaskey—Vice President.
J. R. Perkins—Treasurer.
E. P. Parry—Secretary.

At the conclusion of the meeting the social committee prepared a luncheon and was enjoyed by all.

Announce Meeting Place of Sheet Metal Contractors Association of Illinois

The secretary of the Sheet Metal Contractors' Association of Illinois has just announced that the annual convention will be held in the St. Nickolas Hotel.

The city is Springfield.

The date is April 8, 9 and 10.

Announce Program of Pennsylvania Sheet Metal Ass'n.

As announced in these columns previously, the annual convention of the Sheet Metal Contractors' Association of Pennsylvania is to be held February 18, 19 and 20. The place of the meeting will be the General Brodhead Hotel, Beaver Falls, Pa.

The program as outlined contains a wealth of interesting and worthwhile features. The first morning meeting will be devoted to the address of welcome by the mayor of Beaver Falls. Following the President's response the reports of the President, Secretary and Treasurer will be read and voted upon.

Tuesday afternoon the Vocational

Education, Trades Relations, Legislative, By-laws and Membership committees will present their reports for consideration. The concluding feature on the afternoon program will be an address by E. A. Soctt of the Scott Publishing Company. His subject is "High Cost and Its Remedy."

Wednesday morning the program will be opened with a blackboard discussion of a very hot subject, "Overhead." It is expected that this will be one of the liveliest subjects presented and that much discussion will result. This is to be followed by an address, "Sound Business Practice for the Sheet Metal Contractor," by National President J. E. Merrick. The concluding address of the morning will be given by J. C. Miles of the Warm Air Furnace Fan Company.

Wednesday afternoon will open with the annual election of officers and the selection of next year's convention city. The first paper of the session will be that of Jack Stowell. He will talk on "Better Business and More of It for the Heating Contractor." Those attending the convention from Jack's own part of the country will be prepared for a good talk, full of pertinent thought matter. W. C. Markle, National Secretary, will discuss the new book, "Standard Practice in Sheet Metal Work." George Harms, who did so much to make this book possible, will bring the afternoon session to a close.

A banquet, followed by a dance, will be held in the evening.

Thursday morning the distributors' and salesmen's auxiliary will meet for their election of officers. In the afternoon the session will be broken up and the various businesses will hold meetings. The closing of these group meetings will bring the convention to a close.

Missouri Sheet Metal Contractors Annual Convention

Tuesday and Wednesday, February 18th and 19th, 1930, have been chosen as the dates for the 10th annual convention of the Missouri Sheet Metal Contractors' Association, to be held at St. Joseph, Missouri.

President Wm. R. Seaman is making the necessary arrangements to insure a most successful meeting.

All sheet metal men within the association are assured a live meeting if they come to St. Joe.



Pennsylvania Sheet Metal Contractors' Association, General Broadhead Hotel, Beaver Falls, Pennsylvania, February 18 to 20, 1930. Secretary, M. F. Liebermann, 1411 Merchant Street, Ambridge, Pennsylvania.

Ohio Sheet Metal Contractors' Association, Toledo, Ohio, February 18 to 20, Secor Hotel, Toledo, Ohio. Secretary, J. M. Saunders, East 22nd Street and Prospect avenue, Cleveland, Ohio.

Minnesota Retail Hardware Association, Minneapolis, February 18, 19 and 21, 1930. Charles H. Casey, Manager, 2344 Nicollet Avenue, Minneapolis.

The Michigan Retail Hardware Association Convention and Exhibition, Grand Rapids, Michigan, February 18 to 21, 1930. Hotel Pantlind will be headquarters and the exhibition will be at the Klingman Exhibition Building. A. J. Scott, Secretary, Marine City.

Michigan Sheet Metal & Roofing Contractors Association Convention, Detroit, March 3, 4, 5 and 6, 1930. D. H. Ederle, Assistant Secretary, Grand Rapids, Mich.

Illinois Sheet Metal Contractors' Association, Hotel St. Nicholas, Springfield, Illinois, April 8, 9, 10, 1930. Charles L. Radtke, 1049 East 8th Street, La Salle, Illinois, Secretary.

National Warm Air Heating Association, Detroit, Mich., April 15, 16, 1930. A. W. Williams, 174 E. Long Street, Columbus, Ohio, Managing Director.

National Association of Sheet Metal Contractors, Fort Pitt Hotel, Pittsburgh, Pennsylvania, June 10 to 13, 1930. W. C. Markle, 336 Fourth Avenue, Pittsburgh, Secretary.

NEW ITEMS *and* NEWS ITEMS

From and about the Manufacturers and Jobbers

E. C. "Buck" Taylor Resigns Position with Premier Company

The Premier Warm Air Heater Company this week announced to the trade the resignation of E. C. "Buck" Taylor, vice president and sales manager. While his action comes as a surprise to the industry in general, his friends have known for some time that his health was not of the best. It has been learned that his plans do not include engaging in the furnace business again, and that a rest period of indetermi-



E. C. "Buck" Taylor

nate length is the only thing definitely decided upon.

Buck Taylor has been connected with the warm air heating business in one capacity or another practically all his life and is perhaps the best known figure of the industry. During his years with the Premier Company he has been active in the affairs of the National Warm Air Heating Association, serving as chairman of the Better Business Committee of that organization, and has at all times given his every effort and cooperation toward the bet-

terment of conditions in the industry.

Mr. Taylor has been connected with the furnace industry of Dowagiac since 1916 when he entered the employ of the Rudy Furnace Company as a salesman. He remained with them until 1922, except for an interval of about a year when he was superintendent of the Quaker Furnace Company of Chicago.

In 1922 he joined the Premier Warm Air Heater Company as sales manager and has continued with them in that capacity until the present with the added responsibilities of vice president and secretary. The rise of the Premier Company and its product to their prominence of today has been due in a great measure to his work.

His serious physical condition has been a matter of great concern to his friends who anticipate his early recovery with a great deal of pleasure and relief. He will not be replaced at once. The AMERICAN ARTISAN wishes him a most complete and speedy recovery, wishes him the best of luck in whatever line of work he takes up and says goodbye to a real friend and respected leader in the furnace industry.

Barry Furnace Company Elects Officers

The Barry Furnace Company, Hamilton, Ohio, held its annual stockholders' meeting January 30th. The following officers were re-elected for the ensuing year:

Fred W. Barry, president.

E. H. Riesmeyer, vice president.

E. A. Truster, treasurer.

Almeda J. Issenmann, secretary.

The directors of the company are:

Fred W. Barry, Hamilton, Ohio.

H. N. Martindale, Hamilton, Ohio.

E. H. Riesmeyer, Pittsburgh, Pa.

E. A. Truster, Collinsville, Ohio.

I. B. Doyle, Wilmington, Ohio.

The company reports a very favorable showing for the past year and a promising outlook for 1930. The Barry Furnace Company specializes in the manufacture and sale of BARRY warm air furnaces, formerly the ESTATE furnace.

L. W. Millis of Security Stove and Mfg. Co. Recovering from Illness

L. W. Millis, secretary and treasurer of the Security Stove and Manufacturing Company, Kansas City, has been under the weather for some time. Beginning with mild sickness his health rapidly became worse and a critical illness developed.

His office writes that Mr. Millis has now so far recovered as to be able to sit up in a chair and see visitors.

The ARTISAN wishes him a speedy and complete recovery.

Niagara Furnace Advertised in New Direct Mail Booklet

The Forest City-Walworth Run Foundries Company, Cleveland, have just published through their advertising agency a new booklet on warm air heating. The booklet is designed as a direct mailing piece or a dealer aid to be given prospects.

The text of the booklet is short, but to the point and carries some very definite arguments in favor of warm air heating. The booklet is printed on enameled stock and is bound in an attractive cover. Two colors are used throughout.

The text explains in the first chapter the difference and advantage of comfortable heating, giving the fundamental advantages of humidified, heated air. The second chap-

ter tells how important heating is in relation to health and shows how warm air heating is healthful, scientific and modern. Chapter three explains the advantages a warm air furnace assures by eliminating bulky radiators, dirt, and giving more room area. The operation and control of a furnace is explained so that any reader can understand the operations.

All of these general advantages of warm air heat are then tied up with the Niagara furnace. Its features and advantages are explained and its manufacture and design referred to. The booklet is a very attractive piece of mailing matter.

Hart and Cooley Co. Issue New Catalogue

Some time ago the Hart and Cooley Manufacturing Company took over the business and sale of products of the Federal Manufacturing Company of Holland, Michigan. The businesses have now been consolidated and the items made by the old Federal company are now being sold through Hart and Cooley's regular sales force.

A new catalogue showing the items now being sold has just been published and is available to the trade. The catalogue shows a complete line of furnace regulators, pulleys, dampers, clips and several types of chain.

The products are not new to the furnace trade since they were sold extensively for several years among the furnace manufacturers and sheet metal jobbers.

Langenberg Mfg. Co. Announces Improved Front Rank Furnace

The Langenberg Manufacturing Company, makers since 1888 of the Front Rank steel furnace, have just announced improvements on their furnace. The improvements have been made in view of the interest and sales appeal in the adoption of oil and gas to warm air furnaces. The principal improvement consists of welding all seams after the seams have been riveted and caulked.

In explaining the benefits expected from the new construction the

company says: "The increasing use of gas and oil, both having poisonous by-products of combustion, make necessary increased care in the manufacture of furnaces. The tiniest leak in the furnace structure allows these gases to escape into the air chamber and be carried into the living rooms. The discomfort and danger to health caused by the smallest leaks is so great that nothing less than the tightest possible joint should be used for an oil or gas furnace.

In the power-driven oil burner the lighting of the burner occurs in a cold furnace, and is accompanied by a sudden expansion of the gases in the combustion chamber or drum.

The strain of rapid expansion and contraction is magnified by the power oil burner. Its frequent "on" and "off" action produces alternate heating and cooling which causes a warping and twisting effect to the head and body of the combustion chamber of the furnace.

This strain can only be successfully withstood by a tightly riveted joint. The strength of a riveted seam is a known quantity. Mere inspection with the naked eye can determine its exact strength.

Front Rank seams have always been caulked with a pneumatic hammer, so that any possibility of gas fumes leaking through the joints were eliminated. Now to make assurance trebly sure, the 1930 model Front Rank will in addition to being caulked as heretofore, also be welded.

Film Story of Monel Metal

A two-reel motion picture telling the story of Monel Metal has been released by the Rothacker Film Corporation of Chicago.

The film shows the preparation of the metal in its various commercial forms at Huntington, West Virginia, and traces its various uses in more than a score of different industries.

Also shown in the film is the tapping of an eleven-ton furnace with the molten metal being poured at a

temperature of 3,000 degrees Fahrenheit.

The picture is being offered to schools, societies, commercial organizations, and the like without charge and is available in 35mm and 16mm widths.

Triangulation, a New Text Book for the Pattern Worker

The increasing demand for and the wider specifying of irregular forms to be made in sheet metal has made triangulation an important factor in sheet metal pattern development.

Triangulation, a new book written by F. S. Kidder and published by the Sheet Metal Publication company, 154 Nassau street, New York, is now available in a new and enlarged edition.

The book is a comprehensive treatise for cutters, draftsmen, foremen and students. It progresses from the simplest phases of the subject to the most complex problems employed in the development of patterns. There are 312 pages in the book and 169 engravings, including many reproductions from photographs of models made expressly for this work. The book is cloth bound, 6 by 9 inches in size and sells for \$4.00.

Triangulation contains 27 chapters treating thoroughly all the basic formations of work progressively and with fewest necessary pattern lines.

More About Warm Air Furnace Fan Schools

In the January 18th issue of the AMERICAN ARTISAN a notice was published telling about the Warm air Furnace Fan Company's schools.

The company has just notified us that their 1930 policy will be to hold these schools for three successive nights for any furnace organization that wishes to put the school on. The requirements are that not less than twenty-five students shall attend the full course. The school is put on without any cost to the fur-

(Continued on Page 41)

Each Customer Who Drifts Away Cuts Your Profits!

It has cost you much to put him on your books. Unless he STAYS there, you seldom get all of this cost back. Also every "lost customer" helps lose another.

Never overlook the fact that your customer is your competitor's best prospect. What you've sold him may be entirely satisfactory. But he is more critical of you than he is of your competitor from whom he never has bought. He thinks he knows you. He knows he doesn't know your competitor. And—just as the grass always seems greener in the other fellow's yard—the instant you make a sale to a new customer, you plant in his mind the thought that possibly your products or service are not as good as those your competitor continues to offer.

To combat it, you must constantly keep in friendly individual touch with each and every one of your customers, reminding them why your products are superior and showing how to continue using them to best advantage.

Whether a man is running a hotel, a bank or a railroad, he must follow identical principles, and one of these is to treat every customer as though the success of the enterprise depended on that individual's trade.

Possibly 95 per cent of customers are untouched by slight discourtesies, rude telephone manners, poorly typed letters and shabby offices. Five per cent are keenly awake to these details of good management, and these are the people who are needed as customers if the enterprise is to win prestige.

Routine can be perfected to handle 95 per cent of transactions satisfactorily, leaving only 5 per cent that require skill, judgment and tact. Such a small proportion would not seem a difficult hurdle, but just imagine what would happen to a restaurant that displeased 5 per cent of its patrons each day. It would be out of business in a few months.

When you sell a customer a new

item don't forget about it. Make a note of it and when you see him next time be sure to ask how he liked it.

(Concluded from page 40)

nance organization making the arrangements.

We have also received word that the school in Philadelphia was very successful, having about 50 students each night. The members of the Philadelphia Heating and Sheet Metal Association gave a dinner at the conclusion of the school and forty students attended.

Another school has just been held in Buffalo.

(Concluded from page 37)

lators governed according to the size of the stacks running to them.

The intake pipes should be carried up the wall about 8 feet from the floor, while the vent stacks should be carried to at least 30 inches from the floor.

For every vent flue a number of intake flues are provided with a combined area exceeding that of the required vent flues by 10 per cent.

If only two 14-inch ventilators are used their combined area is only equal to 306.88 square inches, while 911 square inches are required. This indicates a difference or rather an inadequacy of 604 square inches, which proves that the ventilating as laid out in the problem is very inadequate.

(Concluded from page 29)

The Beckwith Company, Dowagiac, Mich. The Beckwith Company had one Round Oak furnace in their booth. We did not get to see the representative to find out who he was.

The Excelsior Steel Furnace Company—Chicago. A new Ace furnace was shown and explained to visitors. In addition there were furnace pipe, pipe fittings, stove pipe and elbows manufactured by the company. W. J. Pendergast, C. E. Glessner and Joe Goldberg explained the features of the products.

Furnas Bizniz

By a Arkansaw Coon Hunter

They wuz a law feller com to see me today as sed the facktery had to du sumthing about me a owin them fur a kar of no good furniziz. I ast him what cud he do. They alls furnace dont hete and the koons aint running none yet. an a feller from Okerlomer kame here huntin rabbits and mi wife run away with him and took mi gun what I got with the muney i got fur the first furnis i sold. All mi coon dawgs went with mi wife and the rabbit hunter and he took both mi pigs. and the feller what sold me the puddle jumper came when i wuz gone and hauled it off. I kaint git meny coons with a bow an arrer and the law feller sez i am in a dum bad mess and I hope you are the same.

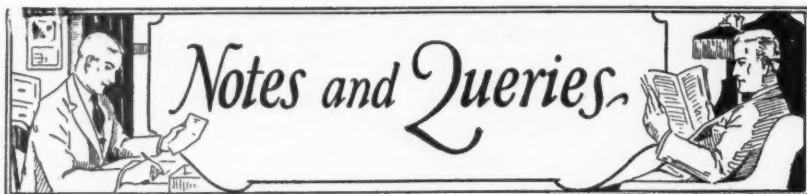
BILL BESTEVER.

(Concluded from page 27)

trouble in arriving at a 45-degree spiral, by developing it from the elevation.

The intersection points in pattern can be taken as the rivet hole centers, and in this case we have 12 rivets in one revolution. If you wish more, then space your lines closer together, and if less, then it is better to divide line 1"-F into as many spaces you desire to make the necessary rivet holes.

You will see that D-7" is the width of the strip, and these lines can be run the full length of an 8 or a 10 foot sheet—I mean lines 1"-C and or D-E. For straight ends the miter 1"-D is cut, and that will work itself out. It is no doubt advisable to start this spiral in the rolls, twisting the strip over in a diagonal position to make the spiral. After a few rounds have been rolled the metal can be slipped out, and this aids in starting the rivets in a free and uniform way. After a few rivets have been set, the rest of the strip can be wrapped around a stake or bent as you rivet it. It may be well to experiment on a small strip first to see how it works before attempting the real work.



Address of Warm Air Furnace Fan Co.
From Peerless Electric Company, 9
South Clinton Street, Chicago.

Please give me the address of the
Warm Air Furnace Fan Company.
Have they a Chicago office?

Ans.—611 Cedar Avenue, Cleve-
land, Ohio. At the present time
they have no Chicago office.

"Campbell" Furnace

From Fairfax Heating Company, 525
West 103d Street, Chicago, Illinois.

Can you tell us who makes the
"Campbell" furnace?

Ans.—Campbell Heating Com-
pany, 1313 Locust Street, Des
Moines, Iowa.

"Tuttle" Air Filter

From Tuttle and Bailey Manufac-
turing Company, Old Colony Building,
Chicago.

We should like to know who
makes the "Tuttle" air filter for reg-
ister boxes.

Ans. — Tuttle Register Dust
Catcher Company, 114 Chestnut
Street, Louisville, Kentucky.

**Wants Cheap Substitute for Black
Stove Paint**

From Reece & Talbot Sheet Metal
Co., 1518 North Main Street, Rock-
ford, Illinois.

We clean furnaces by vacuum and
paint the furnace fronts with black
stove paint. This paint is costly
and we would like to have a cheap
substitute. However, it must not
smoke or smell and must stand heat.
Can you tell us how to make it?

Readers—Can you help them out?

Unishear

From Chicago Furnace Supply Com-
pany, 1278 Clybourn Avenue, Chi-
cago.

Please tell us who makes the shear
called "Unishear."

Ans.—The Stanley Electric Tool
Company, New Britain, Connecticut.

Automatic Stokers

From T. J. Bertin Company, Youngs-
town, Ohio; Miller's Heating &
Sheet Metal Works, 216 East Ferry
Street, Buffalo, New York; North-
Lamp Company, 705 Main Street,
Charles City, Iowa, and David H.
Owen, 2306 Front Street, Meridian,
Mississippi.

Can you tell us who makes auto-
matic stokers for warm air fur-
naces?

Ans.—The Burnham Mfg. Co.,
Boise, Idaho; Combustioneer Inc.,
1829 South 55th Avenue, Chicago;
Domestic Stoker Company, 7 Dey
Street, New York City; Gray &
Murdoch Manufacturing Company,
1416 South State Street, Salt Lake
City, Utah; Iron Fireman Manu-
facturing Company, Portland, Ore-
gon; Motor Stoker Corp., 250 Park
Avenue, New York City; The Su-
perior Stoker Corporation, 4204
North Union Boulevard, St. Louis,
Missouri; The Thomas Stoker Com-
pany, 5906 Park Avenue, Cleveland,
Ohio, and Uniflow Stoker Corpora-
tion, Sidney, Ohio.

Vacuum Furnace Cleaners

From C. B. Jones, Evansville, Indiana.

Will you please inform me who
makes furnace vacuum cleaners?

Ans.—Brillion Furnace Company,
Brillion, Wisconsin; Gottschalk
Heating Company, Covington, Ken-
tucky; National Super Service Com-
pany, Toledo Factories Building,
Toledo, Ohio, and Williamson
Heater Co., Cincinnati, Ohio.

Address of Imperial Brass Mfg. Co.

From J. H. Barnett, Dodge City,
Kansas.

Can you give me the address of
the Imperial Brass Manufacturing
Company?

Ans. — 1200 West Harrison
Street, Chicago.

Information on World's Fair

From C. O. Anderson, Ironwood,
Michigan.

Where can I secure information
on the World's Fair for 1933?

Ans.—Chicago World's Fair, 160
North LaSalle Street, Chicago.

Who Makes "Adjusto" Gutter Hanger?

From A. Zahner and Company, 3041
Wyandotte Street, Kansas City, Mis-
souri.

Can you tell us who manufactures
the "Adjusto" gutter hangers?

Subscribers—Can you help out a
fellow reader?

**Address of National Warm Air Htg.
Assn.**

From The National Super Service
Company, Toledo, Ohio.

We should like to know the ad-

dress of the National Warm Air
Heating Association.

Ans.—174 East Long Avenue,
Columbus, Ohio.

Address of Wood Workers' Journal
From Fred W. Koch, Rogers City,
Michigan.

Please inform me where the Wood
Workers' Journal is located.

Ans.—431 South Dearborn Street,
Chicago.

**Stove and Furnace Repairs in New
York**

From Lincoln Stove Repair Company,
Lincoln, Nebraska.

Will you kindly favor us with the
names of stove repair manufactur-
ers of New York City and vicinity.

Ans.—Stove and Furnace Repair
Company, 228 Water Street; M. M.
Corwin, 256 Water Street; Marcy
Stove Repair Company, 74 Beek-
man Street; Ira G. Lane Company,
1077 Third Avenue; all of New
York City, and Charles Tisch Inc.,
Brooklyn, New York.

Electric Floor Sanding Machines

From Jordan Hardware Company,
119 Main Street, Ottawa, Illinois.

Please tell us who manufactures
electric floor sanding machines.

Ans.—Boettscher Company, 440
North Peoria Street; Clarke Sand-
ing Machine Company, 3815 Cort-
land Street; National Sanding Ma-
chine Company, 4353 Avondale Ave-
nue; Electric Rotary Machine Com-
pany, 3825 West Lake Street; Jones
Superior Machine Company, 1264
West North Avenue; all of Chicago,
and American Floor Surfacing Ma-
chine Company, Toledo, Ohio, The
Kent Company, Inc., 102 Canal
Street, Rome, New York.

**Fancy Brass Legs; Repairs for Metal
Antiques, Etc.**

From Wendel Furnace & Sheet Metal
Works, 246 First Street, Hinsdale,
Illinois.

Do you know of a place where
we can get fancy brass legs repairs
for metal antiques, etc.?

Ans.—Wm. H. Hoops & Com-
pany, 529 South Wabash Avenue,
Chicago.

Address of A. C. Barler Mfg. Co.

From Lincoln Stove Repair Company,
Lincoln, Neb.

Can you tell us where the A. C.
Barler Manufacturing Company,
formerly of Chicago, are now lo-
cated?

Ans.—This firm is now known as
the Barler Heater Company and is
located at Goshen, Ind.

On Every Length—

*A guarantee
of full weight
copper*

HERE'S highest quality copper that you can always identify at a glance. The Chase trademark is on every length of gutters and downspouts.

This means every inch and every square inch is full weight—16 oz.—copper of honest gauge... and is uniform in quality.

That guarantees only two things: that you do a first-class job wherever you use Chase Copper; and that your customer is permanently satisfied.

Use these pure copper products... Chase soft roll copper, flat strip copper and copper roofing accessories... leaders, gutters and downspouts, with the Chase trademark. And make the gutter and downspout installation rustless throughout

by using nails and hangers of Chase Copper, too.

Eighteen Chase Warehouses carry complete stocks. Rely on the nearest one to supply your regular orders—and meet emergency needs.



Remember Chase Copper Nails will make the job rustless throughout.



CHASE COPPER LEADERS ▲ GUTTERS ▲ FLASHINGS

A PRODUCT OF CHASE BRASS & COPPER CO.—Incorporated—Waterbury, Conn.

WAREHOUSES—New York... Boston... Newark... Philadelphia... Baltimore... Cincinnati... Cleveland... Detroit... Chicago... St. Louis... New Orleans... Los Angeles... San Francisco... Buffalo... Milwaukee... Minneapolis... Seattle... Oakland... (Also Branch Offices in Pittsburgh and Dallas.)
Canadian Rep.: W. E. Booth Co., Ltd., Toronto, Ontario. Mills and Home Office, Waterbury, Connecticut.

"We like to use ANACONDA COPPER —it helps business,"

says Earl S. Longyear



Earl S. Longyear, enterprising manager of the Sheet Metal Department of Fowler & Sellars Co., a view of its well-equipped sheet metal shop.



THE sheet metal department of Fowler & Sellars Co., in White Plains, New York, is under the able management of Mr. Longyear. His firm makes money in sheet metal work. Mr. Longyear tells why:

"During the forty years this company has been in business we have refused to skimp a job. Years ago we saw the advantages of copper for sheet metal work—have recommended it—and now find that our customers never question its use.

"We like to use Anaconda Copper because we find that the sheets are flat, accurately gauged and of uniform temper. This is important to

us, as we make some of our gutters, leaders and all ventilators, skylights, etc., in our own shop.

"We find the use of Anaconda Copper a help to our business because the Anaconda name is highly regarded by our customers."

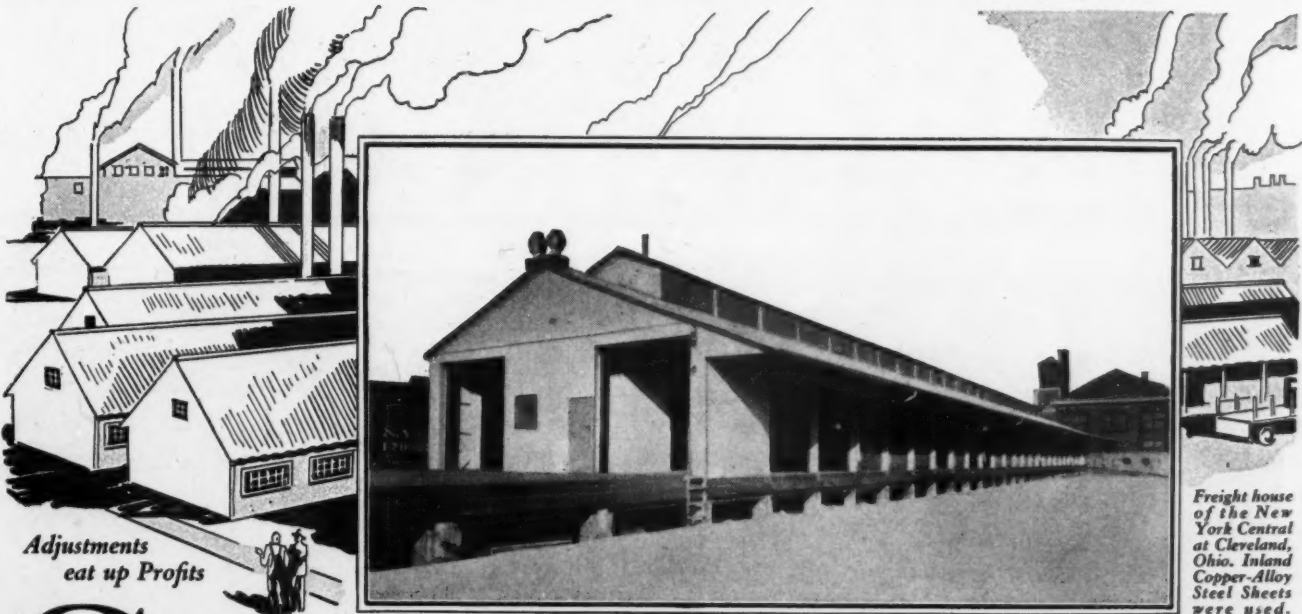
The "uniform temper—flat, accurately gauged sheets" of Anaconda Copper are direct results of more than 100 years' experience in the production of Copper, Brass and Bronze. Great care with each process, from mine to finished product, produces this uniform quality and workability. Stocks of trade-marked sheets, rolls and "Economy" strips, maintained by leading distributors in all parts of the country, assure prompt delivery. The American Brass Co., General Offices: Waterbury, Conn., Offices and Agencies in Principal Cities.



Sheet Metal Work of ANACONDA COPPER

Look for the name ANACONDA in every sheet and strip. Leading Supply Houses carry it

When writing mention AMERICAN ARTISAN—Thank you!



Good work is quickly forgotten —when material fails too soon

EVENTUALLY, any roof will leak—any furnace pipe must be replaced. When?—is the question on which your customer must be satisfied, whether he puts it in words or not. And if the material fails too soon in the customer's opinion your good workmanship is forgotten—an adjustment eats up your profit—and even then, as often as not, your chance for future business is gone. Using the best steel obtainable for the job in hand is your best business builder. That's why more and more sheet metal contractors

are standardizing on Inland Sheets.

There are Inland Sheets exactly suited to every job—in gage, in characteristics. Inland Copper-Alloy lasts longer—costs less than other rust-resisting sheets. Inland Deoxidized Box Annealed and Inland Galvanized Tight Coated are a few of the many sheets Inland makes for particular purposes—all uniform in quality—all the result of long experience and perfected skill in steel making.

Save with Steel



Insist on Inland, the business-building, business-holding sheets.

INLAND STEEL COMPANY

Sheets
Bars
Plates
Structurals

ABLE SERVANT OF THE CENTRAL WEST

38 SOUTH DEARBORN STREET, CHICAGO

Rails
Track Accessories
Rivets
Billets

Mention AMERICAN ARTISAN in your reply—Thank you!

USE LUPTON TROUGHS AND YOU'LL ALWAYS BE PROUD OF THE JOB



THE new Art-Bead Trough answers the demand for a gutter that is both beautiful and practical. The decorative bead has been designed so that it will be in harmony with any type of modern domestic architecture. A look at the picture above proves how effectively it emphasizes the roof-line of a house.

When the driving rains beat down, the Art-Bead Trough proves itself to be one of the most efficient gutters ever made. The decorative border is bent inward and down—like an inverted U. No matter how heavy the storm, the water that washes up to the edge

of the gutter is caught and turned back upon itself. All of the rain keeps to the gutter. None drips over to streak the house.

The Lupton Art-Bead Trough is made in all of the standard roofing-accessory metals. Sections fit snug. Any type of hanger may be used. However, the Lupton shank and circle are the most practical. Every Art-Bead job you put up will build good-will for you among the home owners in your community. Have your jobber show you samples. David Lupton's Sons Company, Allegheny Avenue and Tulip Street, Philadelphia, Pa.

LUPTON ART-BEAD TROUGH

Mention AMERICAN ARTISAN in your reply—Thank you!

Undeniable progress



Barnes

Barnes Super Miter

THE most rigid miter ever made. Designed in two pieces which are joined together by a lock seam. The Barnes clip—an exclusive feature, is rigidly secured where the beaded edges meet. Accurate right angle and adequate bead insure easy assembly on the job.

Use Barnes Products to Build Better Business

BARNES METAL PRODUCTS COMPANY
4425 W. 16TH STREET CHICAGO, ILLINOIS
MANUFACTURERS OF CONDUCTOR PIPE, ELBOWS, EAVES
TROUGH AND FITTINGS. ALL SIZES, ALL METALS

“ Galvannealed ”

‘The Coated Sheet Without a Flake’

THIS Spelter Alloy Coated and Heat Treated Sheet is individually best suited for products where a Rust Resisting Sheet is required. Many severe formations and stampings are possible without the coating flaking or peeling. If the finished article is to be painted, baked enameled or lacquered the surface of this sheet is particularly adaptable.

Made with a special analysis Open Hearth Steel or Copper Content base.

The Modern Furnace Casing finished in Colors is most satisfactory where Superior “Galvannealed” is used. ”

THE above reprint is the Manufacturer's description of Galvannealed and its utility. It is self explanatory and serves to introduce the fact that we carry Superior Galvannealed Stretcher Leveled Sheets in the following Gauges and Sizes at our Detroit, Cleveland and Buffalo Warehouses.

26 Gauge.....	Size	30 x 120
26 “	Size	36 x 120
26 “	Size	42 x 120
24 Gauge.....	Size	30 x 96
24 “	Size	36 x 120
24 “	Size	48 x 120

THE J. M. & L. A.

OSBORN & CO

DETROIT-CLEVELAND-BUFFALO

“Everything Used in Sheet Metal Work”

Used by 35,000 Sheet Metal Workers



These Screws may save you many dollars in 1930

IF you are not already using these unique Screws, your cost of joining sheet metal and making fastenings to sheet metal is much higher than it should be. Thirty-five thousand sheet metal workers can testify that Hardened Self-tapping Screws save from 25% to 75% in time and labor over all other methods.

This means thousands of dollars a year to the large sheet metal shop and decidedly worth while savings to the smaller shop.

No other means of assembling sheet metal can compare with Self-tapping Screws for ease, speed, economy and

security. A big claim...but just try these Screws!

No tapping necessary...no wasting time to run on nuts in hard-to-get-at places. Just turn a Self-tapping Screw into a drilled or punched hole with a screw driver. It taps its own thread in the metal; makes a fastening that holds better than a machine screw—even under vibration.

A test on your own work will show you how these Screws will save money for you in 1930. The coupon brings samples, free. Use it, now.

PARKER-KALON CORPORATION
190 Varick Street New York, N.Y.

PARKER-KALON HARDENED SELF-TAPPING Sheet Metal Screws

PATENTED APR. 1, 1918 - NO. 1259232 - MAR. 28, 1923 - NO. 1411184
AUG. 14, 1923 - NO. 1463143 - FEB. 10, 1929 - NO. 1526192 - OTHERS PENDING

PARKER-KALON CORP., 190 Varick Street, New York, N.Y.
Please send me samples of Hardened Self-tapping Screws.
I want to try them out for:

Name _____
Address _____

When writing mention AMERICAN ARTISAN—Thank you!

Chicago Warehouse Metal and Furnace Supply Prices

AMERICAN ARTISAN is the only publication containing Western Metal, Furnace Supply and Hardware prices corrected bi-weekly

Note: These Prices Are Chicago Warehouse Prices of Metal, to Which Must Be Added Freight to Cities Outside of Chicago

METALS

PIG IRON

Chicago Fdy., No. 2	\$20 00
Southern Fdy. No. 2	21 51
Lake Superior Charcoal	27 04
Malleable	20 00

FIRST QUALITY BRIGHT CHARCOAL TIN PLATES

IC 20x28 112 sheets	\$22 50
IX 20x28	25 50
IXX 20x28 56 sheets	14 50
IXXX 20x28	15 50
IXXXX 20x28	17 00

TERNE PLATES

IC 20x28, 40-lb. 112 sheets	\$26 70
IX 20x28, 40-lb. 112 sheets	29 70
IC 20x28, 25-lb. 112 sheets	22 20
IX 20x28, 25-lb. 112 sheets	25 20
IC 20x28, 20-lb. 112 sheets	20 25
IX 20x28, 20-lb. 112 sheets	23 00

"ARMCO" INGOT IRON PLATES	
No. 8 ga.—100 lbs.	\$4 15
3/16 in.—100 lbs.	4 05
1/4 in.—100 lbs.	3 85

COKE PLATES

Cokes, 80 lbs., base, 20x28	\$12 00
Cokes, 90 lbs., base, 20x28	12 20
Cokes, 100 lbs., base, 20x28	12 40
Cokes, 107 lbs., base, IC	
20x28	12 75
Cokes, 135 lbs., base, IX	
20x28	14 75
Cokes, 155 lbs., base, 2X	
56 sheets	8 50
Cokes, 175 lbs., base, 3X	
56 sheets	9 35
Cokes, 195 lbs., base, 4X	
56 sheets	10 25

BLUE ANNEALED SHEETS

Base 10 ga.—per 100 lbs.	\$3 35
"Armco" 10 ga.—per 100 lbs.	4 15

ONE PASS COLD ROLLED BLACK

No. 18-20	per 100 lbs. \$3 85
No. 22	per 100 lbs. 4 00
No. 24	per 100 lbs. 4 05
No. 26	per 100 lbs. 4 15
No. 27	per 100 lbs. 4 20
No. 28	per 100 lbs. 4 30
No. 29	per 100 lbs. 4 45
No. 30	per 100 lbs. 4 55

"ARMCO" GALVANIZED

"Armco" 24	per 100 lbs. \$6 10
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GALVANIZED

No. 16	per 100 lbs. \$4 40
No. 18	per 100 lbs. 4 55
No. 20	per 100 lbs. 4 70
No. 22	per 100 lbs. 4 75
No. 24	per 100 lbs. 4 90
No. 26	per 100 lbs. 5 15
No. 27	per 100 lbs. 5 25
No. 28	per 100 lbs. 5 40
No. 29	per 100 lbs. 5 45
No. 30	per 100 lbs. 5 80

BAR SOLDER

Warranted 50-50 per 100 lbs.	\$28 00
45-55	per 100 lbs. 27 00
46-55	per 100 lbs. 24 50
Plumbers'	per 100 lbs. 23 00

ZINC

In Slabs	\$7 35
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SHEET ZINC

Cask Lots (500 lbs.)	\$12 00
Sheet Lots	14 00

BRASS

Sheets, Chicago base	24 1/2 c
Mill base	23 1/2 c
Tubing, brazed, Chicago base	31 1/2 c
Mill base	30 1/2 c
Tubing, seamless, Chicago base	29 1/2 c
Mill base	28 1/2 c
Wire, Chicago base	24 1/2 c
Mill base	23 1/2 c
Rods, Chicago base	22 1/2 c
Mill base	21 1/2 c

COPPER

Sheets, Chicago base	27 1/2 c
Mill base	26 1/2 c
Tubing, seamless, Chicago base	30 1/2 c
Mill base	29 1/2 c
Wire, plain rd., 8 B. & S. Go.	
and heavier	25 1/2 c

LEAD

American Pig	\$7 00
Bar	8 00

TIN

Bar Tin	per 100 lbs. \$46 00
Pig Tin	per 100 lbs. 45 00

HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

ASBESTOS

Paper up to 1/16	6c per lb.
Roll board	7 1/2 c per lb.
Mill board 3/32 to 1/2	7 1/2 c per lb.
Corrugated paper (250 sq. ft. to roll)	\$6 00 per roll

ASBESTOS SEGMENTS

8 in.	per 100 sets \$7 30
9 in.	per 100 sets 8 30
10 in.	per 100 sets 9 30
12 in.	per 100 sets 10 50

BRUSHES

Furnace Pipe Cleaning	
Bristle with handle, each	\$0 75
Flue Cleaning	
Steel only, each	1 25

CEMENT, FURNACE

American Seal, 5-lb. cans, net	\$4 40
American Seal, 10-lb. cans, net	8 80
American Seal, 25-lb. cans, net	2 00
Pecora	per 100 lbs. 7 50

CHIMNEY TOPS

Adams' Revolving	
Wt. Doz.	Price Doz.
4 in.	21 lbs. \$11 00
6 in.	24 lbs. 11 50
7 in.	30 lbs. 13 50
8 in.	33 lbs. 15 00
9 in.	51 lbs. 16 50
10 in.	56 lbs. 18 00
12 in.	66 lbs. 22 00
14 in.	110 lbs. 36 00

CLINKER TONGS

Each	\$1 50
------	--------

CLIPS

Damper	
No-Rivet Steel, with tail pieces, per gross	\$9 50
Rivet Steel, with tail pieces, per gross	7 50
Tail pieces, per gross	2 40

COPPERS—Soldering

Pointed Roofing	
3 lb. and heavier	per lb. 40c
2 1/2 lb.	per lb. 45c
2 lb.	per lb. 48c
1 1/2 lb.	per lb. 55c
1 lb.	per lb. 60c

CORNICE BRAKES

Chicago Steel Bending	
Nos. 1 to 6B	Net

CUT-OFFS

Gal., plain, round or cor. rd.	
26 gauge	30%
28 gauge	35%

DAMPERS

Yankee Hot Air	
7 inch, doz.	\$1 60
8 inch, doz.	2 20
9 inch, doz.	2 60
10 inch, doz.	2 80
12 inch, doz.	3 50
14 inch, doz.	5 00

ADAMS No. 1 CHECK

Check and Collar Complete	
8 inch, each	2 00
9 inch, each	2 25
End Check Only	
8 inch, each	1 60
9 inch, each	1 85
Collar Only	
8 inch, each	50
9 inch, each	65

No. 2 CHECK

8 inch, each	1 00
9 inch, each	1 00
10% Disc. on Adams No. 1	

and No. 2 Check

Diamond Smoke Pipe	
7 inch, doz.	\$2 00
8 inch, doz.	3 20
9 inch, doz.	4 80
10 inch, doz.	9 00
Adams' Sheet Metal	

7 inch, doz.	\$1 60
8 inch, doz.	2 20
9 inch, doz.	2 60
10 inch, doz.	2 80
12 inch, doz.	3 50
14 inch, doz.	5 00

EAVES TROUGH

Galv. Crimpedge, crated	.75-10%
Zinc, "Barnes"	.60%

ELBOWS

Conductor Pipe	
Galv. plain or corrugated, round flat Crimp,	
28 gauge	.60%
26 gauge	.45%
24 gauge	.15%

Galv. Terne Steel

Plain Rd. and Rd. Corr.	
28 gauge	.60%
26 gauge	.45%
24 gauge	.15%

Square Corrugated

28 gauge	.50%
26 gauge	.35%

Portico Elbows

Standard Gauge Conductor Pipe, plain or corrugated,	
Not nested	.70 & 5%
Nested solid	.70 & 5%
Sq. Corr., A. & B. & Octagon	
28 gauge	.50%
26 gauge	.35%

Portico

1, 1 1/4, 1 1/2 inch	.45%
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Copper

16 oz., all designs	.40%
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Zinc

All styles	.60%
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ELBOWS—Stove Pipe

1-piece Corrugated, Uniform Blue	
"Milcor" No. 28 Gauge, Doz.	\$1 15
5 inch	1 25
6 inch	1 25
7 inch	1 75

Special Corrugated

6 inch	\$1 00
7 inch	1 60

Adjustable—Uniform Blue

"Milcor" No. 28 Gauge, Uniform Blue,	
5 inch	\$1 60
6 inch	1 75
7 inch	2 10

WOOD FACES—60% off list.

FENCE

726-6-12 1/2% (100 rods)	\$28 68
1948-6-14 1/2% (100 rods)	43 62

FILES AND RASPS

Heller's (American)	.50-10%
American	.60-10%
Arcade	.50%
Black Diamond	.50%
Eagle	.50%
Great Western	.50%
Kearney & Foot	.50%
McClellan	.50%
Nicholson	.50%
Simonds	.50%

FIRE POTS

Geo. W. Diener Mfg. Co.	Each
No. 02 Gasoline Torch, 1 qt.	\$5 13
No. 9250, Kerosene, or Gasoline Torch, 1 qt.	6 50
No. 10 Tinner's Furn. Square tank, 1 gal.	11 20
No. 15 Tinner's Furn. Round tank, 1 gal.	10 70
No. 21 Gas Soldering Furnace	8 00
No. 110 Automatic Gas Soldering Furnace	10 50

GLASS

Single Strength, A, all brackets	.85%
Single Strength, B, all brackets	.87%
Double Strength, A, all brackets	.85%
Double Strength, B, all brackets	.87%

HANGERS

Conductor Pipe	
Milcor Perfection Wire	.25%
Milcor Triplex Wire	.10%

Eaves Trough

Milcor Steel (galv. after forming) from List	.50%
Milcor Selflock E. T. Wire, List	.10%

HOOKS

Conductor	
"Direct Drive" Wrought Iron for wood or brick	.15%

HUMIDIFIER

"Front-Rank," Automatic	
In single lots	.50%
In lots of 10 or more	.50-5%
In lots of 25 or more	.50-10%
Vapor pans, etc., each	.50%

LIFTERS

Stove Cover	
Coppered	per gro. \$6 00
Alaska	per gro. 4 75

MALLETS

Tinners	
Hickory	per doz. \$2 20

MITRES

Galvanized steel mitres	
28 gauge	.70
26 gauge	.60-20

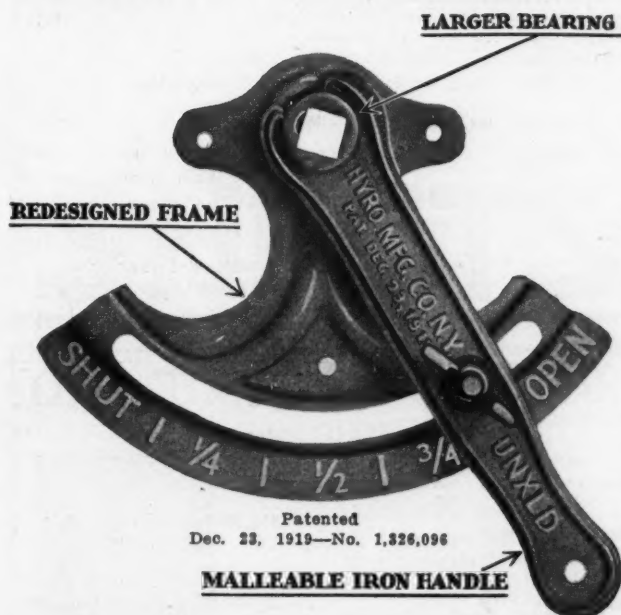
NAILS

Cut Steel, base	\$4 00
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Wire	
Common Wire, L. C. L.	2 95
Cement Coated	2 95

(Continued on page 52)

THE IMPROVED HYRO "UNXLD" DAMPER QUADRANT



A New Quadrant for regulating dampers in hot and cold air ducts, blower systems, etc., with these improvements:

LARGER BEARING SURFACE. The new type quadrant provides a much larger bearing surface for the rod, eliminating the possibility of the rod slipping out, and also does away with the objectionable rattling of the damper.

MALLEABLE IRON HANDLE. The handle of the new quadrant is made of malleable iron. It is more rigid than the old handle and makes a much neater installation.

REDESIGNED FRAME. The frame of the $\frac{3}{8}$ " quadrant is smaller than that of the old model. This size was determined to be the most practical for regulating dampers that require a $\frac{3}{8}$ " quadrant. The frame of the $\frac{1}{2}$ " quadrant will remain the same size.

HYRO DIAL DAMPER REGULATOR



Here is another practical and efficient device for regulating small and medium size dampers in hot and cold air ducts, blow pipes, etc. It was designed to meet the demand for a less costly damper regulator than our "Unxld" Damper Quadrant.

The Hyro Dial Damper Regulator is of very simple construction. It is easily and quickly attached to either curved or flat surfaces. It requires only two bolts or rivets to hold it absolutely rigid.

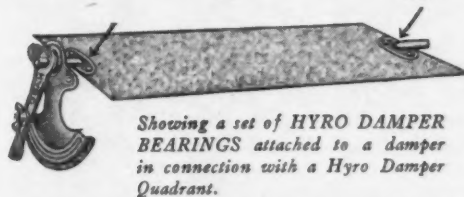
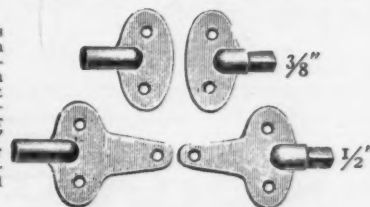
The graduated dial shows at a glance the exact position of the damper in the duct.

When tightened, the wing-nut locks the damper in the desired position, giving absolute control of the passage of air.

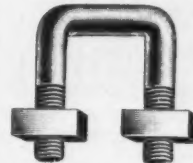
Made of steel to fit $\frac{3}{8}$ " square rod or Hyro Damper Bearings. Furnished in an electro-galvanized finish only.

HYRO DAMPER BEARINGS

Used instead of rods on small and medium size dampers. Quickly attached. Made in two sizes— $\frac{3}{8}$ " to fit $\frac{3}{8}$ " Damper Quadrants or Dial Damper Regulators and $\frac{1}{2}$ " to fit $\frac{1}{2}$ " Damper Quadrants. Furnished in galvanized finish only.



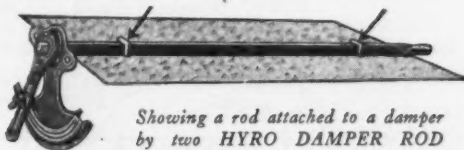
HYRO DAMPER ROD CLIP



Patented April 4, 1922
No. 1,411,945

Offers a quick and easy means of fastening square rod to dampers.

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ADVERTISERS' INDEX

The dash, (—) indicates that the advertisement runs on a regular schedule but does not appear in this issue.

A		M	
A-C Mfg. Co.....	—	MaGirl Foundry & Furnace Co. —	
Aeolus-Dickinson Co.	—	Majestic Co.	—
Agricola Furnace Co.....	—	Maplewood Machinery Co.....	—
Alamo Heater Co.....	—	Marshalltown Mfg. Co.....	—
American Brass Co.....	44	Martin Bruno	—
American Fdy. & Furnace Co. —		May-Fiebeger Co.	13
American Furnace Co.....	—	McIlvaine Burner Corp.....	7
American Wood Register Co..	14	Meyer & Bros. F.....	8
American Rolling Mill Co.....	—	Meyer Furnace Co.....	—
Auer Register Co.....	12	Midland Furnace Co.....	—
		Miller Mfg. Co., E. L.....	—
		Miller & Doink, Inc.....	55
		Milwaukee Corr. Co..Back Cover	
		Minneapolis-Honeywell Regu-	
		lator Co.	9
B		N	
Barnes Metal Prod. Co.....	47	National Super-Service Co. ..	12
Beh & Co.....	—	National Warm Air Heating	
Berger Bros. Co.....	53	Association	—
Bertsch & Co.....	55		
Brillion Furnace Co.....	10		
Brundage Co.	—		
C		O	
Central Alloy Steel Corp.....	—	Osborn Co., The J. M. & L. A.	48
Chase Brass & Copper Co.....	43		
Connors Paint Co., Wm.....	14		
Copper & Brass Research As-			
sociation	—		
D		P	
Deniston Co.	—	Parker-Kalon Corp.	49
Dieckmann Co., Ferdinand....	—	Payne Furnace & Supply Co....	—
Diener Mfg. Co., Geo. W.....	55	Peck, H. E.....	58
Dreis & Krump Mfg. Co.....	53	Peerless Foundry Co.....	11
Dustless Ash Co.....	14	Perfect Humidifier Co.....	—
		Premier Warm Air Heater Co. —	
E		Q	
Eller Mfg. Co.....	—	Quincy Pattern Co.....	—
Emrich, C., Co.....	10		
Enterprise Boiler & Tank Wks.	13		
F		R	
Fanner Mfg. Co.....	14	Revere Copper & Brass, Inc... —	
Farris Furnace Co.....	12	Richardson & Boynton Co.....	6
Forest City-Walworth Run		Robinson Co., A. H.....	—
Fdy. Co.	—	Rock Island Register Co.....	11
Fort Shelby Hotel.....	—	Rockford Sheet Steel Co.....	—
Fox Furnace Co.....	3	Royal Ventilator Co.....	—
		Rudy Furnace Co.....	—
		Ryerson & Sons, Inc., Jos. T... 53	
H		S	
Harrington & King Perf. Co..	53	Sall Mountain Co.....	—
Hart & Cooley Co.....	15	Sheer Co., H. M.....	—
Henry Furnace & Foundry		Sheet Steel Trade Extension	
Co.	—	Committee	—
Hess Warming & Ventilating		Skuttle Co., J. L.....	—
Co.	5	Standard Fdy. & Furnace Co....	—
Wm. Highton & Sons Div.....	—	Standard Ventilator Co.....	—
Howes Co., S. M.....	14	St. Louis Tech. Inst.....	58
Hyro Mfg. Co.....	51	Success Heater Mfg. Co.....	2
		St. Louis Heating Co.....	—
		Symonds Reg. Co.....	—
I		T	
Independent Reg. & Mfg. Co..	14	Taylor Co., N. & G.....	—
Inland Steel Co.....	45	Technical Products Co.....	—
International Nickel Co.....	18	Thompson Boat & Pattern	
Interstate Machinery Co.....	58	Works	58
		Tuttle & Bailey Mfg. Co.....	—
		XXth Century Htg. & Mfg. Co. —	
K		V	
Kester Solder Co.....	—	Vedder Pattern Works.....	—
Kirk-Latty Co.	—	Viking Shear Co.....	53
Kleenaire Filter Co.....	—		
Ku-No Register Mfg. Co.....	—		
L		W	
Lakeside Co.	59	Watt Mfg. Co.....	—
Lamneck & Co., W. E.....	—	Warm Air Furnace Fan Co....	—
Lamson & Sessions Co., The..	14	Waterloo Register Co.....	—
Langenberg Mfg. Co.....	4	Waterman-Waterbury Co.	—
Larsen-Bennett Co.	14	Western Steel Products Co....	17
La Salle Machine Works.....	—	Williamson Heater Co.....	—
Lennox Furnace Co.....	—	Wise Furnace Co.....	—
London Furnace Co.....	10		
Lupton's Sons Co., David.....	46		

Markets—Continued from page 50

PASTE		RIDGE ROLL	
Asbestos Dry Paste		Galv. Plain Ridge Roll,	
200-lb. barrel	\$15 00	b'dld	75-15-5%
100-lb. barrel	7 75	Galv., Plain Ridge Roll,	
50-lb. pail	4 50	crated	75-15%
25-lb. pail	2 50		
10-lb. bag	1 20		
5-lb. bag	60		
POKERS, FURNACE		SCREWS	
Each	\$0 75	Sheet Metal	
		7, 1/2x1/4, per gross.....\$0 52	
		No. 10, 3/4x3/16, per gross 68	
		No. 14, 7/8x1/4, per gross.. 88	
POKERS, STOVE		SHEARS, TINNERS' & MACHINISTS'	
Nickel Plated, coll handles, per doz.	\$1 10	Viking	
W'r't Steel, str't or bent, per doz.	0 75	Lennox Throatless	
		No. 18	
		Shear blades	
		(f. o. b. Marshalltown, Iowa)	
PIPE		SHIELDS, ADJUSTABLE RADIATOR	
Conductor		No. 1 "Gem" 11 to 17 inch...30%	
Cor. Rd., Plain Rd., or Sq.		No. 2 "Gem" 14 to 24 inch...30%	
Galvanized		No. 3 "Gem" 35 to 65 inch...30%	
Crated and nested (all gauges)		SHOES	
75-7 1/2 %		Galv. 28 Gauge, Plain or Cor- rugated, round flat crimp...60%	
Crated and not nested (all gauges)		26 gauge, round flat crimp...45%	
75-2 1/2 %		24 gauge, round flat crimp...15%	
Furnace Pipe		SNIPS, TINNERS'	
Double Wall Pipe and Fittings		Clover Leaf	
50 & 10%		National	
Single Wall Pipe, Round Galvanized Pipe		Star	
50 & 10%		Milcor	
Galvanized and Tin Fit- tings		SQUARES	
50 & 10%		Steel and Iron.....	
Lead		(Add for bluing \$3 per doz. net)	
Per 100 lbs.....		Mitre	
\$12 50		Try	
Stove Pipe		Try and Bevel.....	
"Milcor" "Titelock" Uniform Blue Stove		Try and Mitre.....	
28 gauge, 5 inch U. C. nested		Fox's	
\$11 00		Winterbottom's	
28 gauge, 6 inch U. C. nested			
12 00			
28 gauge, 7 inch U. C. nested			
14 00			
30 gauge, 5 inch U. C. nested			
10 25			
30 gauge, 6 inch U. C. nested			
11 00			
30 gauge, 7 inch U. C. nested			
13 00			
T-Joint Made up			
6 inch, 28 ga....per doz.			
\$3 40			
All Zinc			
No. 11, all styles.....			
60%			
PULLEYS			
Furnace Tackleper doz.			
\$0 85			
.....per gro.			
8 50			
Furnace Screw (enameled)per doz.			
75			
PUTTY			
Commercial Putty, 100-lb. Kits			
\$3 15			
QUADRANTS			
Malleable Iron Damper.....			
10%			
REDUCERS—Oval Stove Pipe			
Per Doz.			
7—6, 28-gauge, 1 doz. in carton			
\$2 00			
REGISTERS AND FACES			
Floor Registers			
Except Cast Iron.....			
40&10%			
Cast Iron			
20%			
Baseboard			
2-Piece			
40&10%			
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Adjustable Ventilators....			
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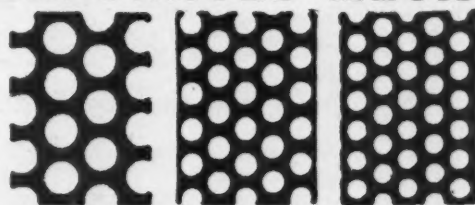
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Emrich Co., C., Columbus, Ohio
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Highton & Sons, Wm., Nashua, N. H.
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Fanner Mfg. Co., Cleveland, Ohio

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Standard Fdy. & Furnace Co., De Kalb, Ill.

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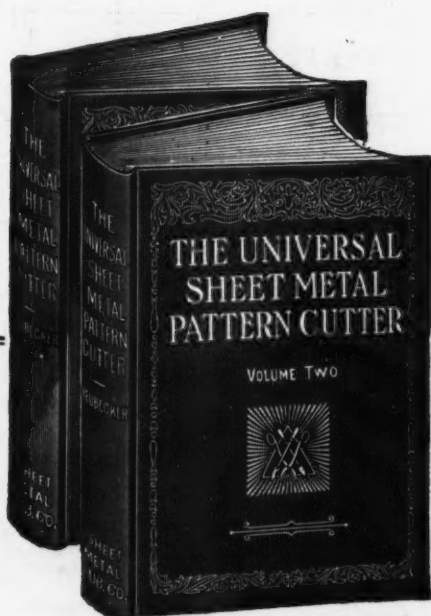
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Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Miters—Eaves Trough.
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Berger Bros. Co., Philadelphia, Pa.
Eller Mfg. Co., Canton, Ohio
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

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(Continued on page 56)

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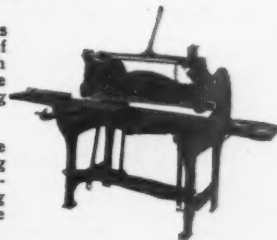
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(Continued from page 54)

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McIlvaine Burner Corp.,
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Miller & Doing, Inc., Brooklyn, N. Y.
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Connors Paint Mfg. Co., Wm.,
Troy, N. Y.

Patterns—Boat.

Thompson Boat & Pattern Co.,
H. F., Decorah, Iowa

Perforated Metals.

Harrington & King Perforating
Co., Chicago, Ill.

Pipe and Fittings—Furnace.

Eller Mfg. Co., Canton, Ohio
Henry Furnace & Fdy. Co.,
Cleveland, Ohio
Lamneck Co., W. E.,
Columbus, Ohio
Meyer & Bro. Co., F., Peoria, Ill.
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City
Osborn Co., The J. M. & L. A.,
Cleveland Ohio
Peerless Foundry Co.,
Indianapolis, Ind.

Pipe and Fittings—Stove.

Meyer & Bro. Co., F., Peoria, Ill.
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City

Pipe—Conductor.

Barnes Metal Products Co.,
Chicago, Ill.
Berger Bros. Co.,
Philadelphia, Pa.
Dieckmann Co., Ferdinand,
Cincinnati, Ohio
Eller Mfg. Co., Canton, Ohio
Lupton's Sons Co., David,
Philadelphia, Pa.
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City

Presses.

La Salle Machine Works,
Chicago, Ill.

Pipe Covering.

Sall Mountain Co., Chicago, Ill.

Punches.

Bertsch & Co., Cambridge City, Ind.
Interstate Machinery Co.,
Chicago, Ill.
La Salle Machine Works,
Chicago, Ill.
Ryerson & Son, Inc., Jos. T.,
Chgo., N. Y., St. L., Det., Cleve.

Punches—Combination Bench and Hand.

Hyro Mfg. Co., New York, N. Y.

Punches—Hand.

Hyro Mfg. Co., New York, N. Y.

Putty—Stove.

Connors Paint Mfg. Co., Wm.,
Troy, N. Y.

Radiator Cabinets.

The Hart & Cooley Mfg. Co.,
New Britain, Conn.
Tuttle & Bailey Mfg. Co.,
Chicago, Ill.

Radiators—Shields.

Beh & Co., Inc., New York, N. Y.

Register Shields.

Beh & Co., Inc., New York, N. Y.

Registers—Warm Air.

Auer Register Co., Cleveland, Ohio
Eller Mfg. Co., Canton, Ohio
Forest City-Walworth Run
Foundries Co., Cleveland, Ohio
Hart & Cooley Co.,
New Britain, Conn.
Henry Furnace & Fdy. Co.,
Cleveland, Ohio
Independent Register & Mfg.
Co., Cleveland, Ohio
Ku-No Register Mfg. Co.,
St. Louis, Mo.
Lamneck & Co., W. E.,
Columbus, Ohio
Meyer & Bro. Co., F., Peoria, Ill.
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City
Rock Island Register Co.,
Rock Island, Ill.
Symonds Register Co.,
St. Louis, Mo.
Tuttle & Bailey Mfg.,
Chicago, Ill.

Registers—Wood.

American Wood Register Co.,
Plymouth, Ind.
Auer Register Co., Cleveland, Ohio
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City

Regulators—Heat.

H. M. Sheer Co., Chicago, Ill.

Ridging.

American Rolling Mill Co.,
Middletown, Ohio
Eller Mfg. Co., Canton, Ohio
Lupton's Sons Co., David,
Philadelphia, Pa.
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City

Rivets—Stove.

The Kirk-Latty Co., Cleveland, Ohio
Lamson & Sessions Co.,
Cleveland, Ohio
Ryerson & Son, Inc., Jos. T.,
Chgo., N. Y., St. L., Det., Cleve.

Rods—Stove.

The Kirk-Latty Co., Cleveland, Ohio
Lamson & Sessions Co.,
Cleveland, Ohio

Rolls—Forming.

Bertsch & Co., Cambridge City, Ind.

Roofing Cement.

Connors Paint Mfg. Co., Wm.,
Troy, N. Y.

Roof—Flashing.

Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co.,
Milwaukee, Wis.

Roofing—Iron and Steel.

American Rolling Mill Co.,
Middletown, Ohio
Central Alloy Steel Corp.,
Massillon, Ohio
Eller Mfg. Co., Canton, Ohio
Inland Steel Co., Chicago, Ill.
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City
Osborn Co., The J. M. & L. A.,
Cleveland, Ohio
Ryerson & Son, Inc., Jos. T.,
Chgo., N. Y., St. L., Det., Cleve.

Roofing—Tin.

Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City
Taylor Co., N. & G.,
Philadelphia, Pa.

Rubbish Burners.

Hart & Cooley Co.,
New Britain, Conn.

Schools—Sheet Metal Pattern Drafting.

St. Louis Technical Institute,
St. Louis, Mo.

Schools—Warm Air Heating.

St. Louis Technical Institute,
St. Louis, Mo.

Screws—Hardened Metallic Drive.

Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City
Parker-Kalon Corp.,
200 Varick St., New York

Screws—Hardened Self-Tapping, Sheet Metal.

Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City
Parker-Kalon Corp.,
200 Varick St., New York

Screens—Perforated Metal.

Harrington & King Perforating
Co., Chicago, Ill.

Shears—Hand and Power.

Interstate Machinery Co.,
Chicago, Ill.
Marshalltown Mfg. Co.,
Marshalltown, Ia.
Ryerson & Son, Inc., Jos. T.,
Chgo., N. Y., St. L., Det., Cleve.
Viking Shear Co., Erie, Pa.

Sheet Metal Nails.

Deniston Co., Not Inc.,
Chicago, Ill.

Sheet Metal Screws—Hardened, Self-Tapping.

Parker-Kalon Corp.,
200 Varick St., New York

Sheets—Alloy.

Central Alloy Steel Co.,
Massillon, Ohio
International Nickel Co.,
New York, N. Y.

Sheets—Black and Galvanized.

American Rolling Mill Co.,
Middletown, Ohio
Central Alloy Steel Corp.,
Massillon, Ohio
Eller Mfg. Co., Canton, Ohio
Inland Steel Co., Chicago, Ill.
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City
Osborn Co., The J. M. & L. A.,
Cleveland, Ohio
Rockford Sheet Steel Co.,
Rockford, Ill.
Ryerson & Son, Inc., Jos. T.,
Chgo., N. Y., St. L., Det., Cleve.
Taylor Co., N. & G.,
Philadelphia, Pa.

Sheets—Iron.

American Rolling Mill Co.,
Middletown, Ohio
Central Alloy Steel Corp.,
Massillon, Ohio
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City
Ryerson & Son, Inc., Jos. T.,
Chgo., N. Y., St. L., Det., Cleve.

Sheets—Tin.

Taylor Co., N. & G.,
Philadelphia, Pa.

Shingles and Tiles—Metal.

Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City

Sifters—Ash.

Diener Mfg. Co., G. W.,
Chicago, Ill.

Sky Lights.

Eller Mfg. Co., Canton, Ohio
Lupton's Sons Co., David,
Philadelphia, Pa.
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City

Smoke Pipe—Cast Iron.

Waterloo Register Co.,
Waterloo, Ia.

Snips.

Ryerson & Son, Inc., Jos. T.,
Chgo., N. Y., St. L., Det., Cleve.

Solder—Aid Core.

Kester Solder Co., Chicago, Ill.

Solder—Self-Fluxing.

Kester Solder Co., Chicago, Ill.

Solder—Rosin Core.

Kester Solder Co., Chicago, Ill.

Solder.

Eller Mfg. Co., Canton, Ohio
Kester Solder Co., Chicago, Ill.
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City

Soldering Coppers.

Revere Copper & Brass,
Rome, N. Y.

Soldering Furnaces.

Diener Mfg. Co., G. W.,
Chicago, Ill.
Ryerson & Son, Inc., Jos. T.,
Chgo., N. Y., St. L., Det., Cleve.

Specialties—Hardware.

Diener Mfg. Co., G. W.,
Chicago, Ill.

Stars—Hard Iron Cleaning.

Fanner Mfg. Co., Cleveland, Ohio

Statuary.

Gerock Bros. Mfg. Co.,
St. Louis, Mo.
Miller & Doing, Inc.,
Brooklyn, N. Y.

Stove Pipe Reducers.

Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City

Tinplate.

Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City
Osborn Co., The J. M. & L. A.,
Cleveland, Ohio
Taylor Co., N. & G.,
Philadelphia, Pa.

Tools—Tinsmith's.

Bertsch & Co., Cambridge City, Ind.
Dries & Krump Mfg. Co.,
Chicago, Ill.
Hyro Mfg. Co., New York, N. Y.
Interstate Machinery Co.,
Chicago, Ill.
Osborn Co., The J. M. & L. A.,
Cleveland, Ohio
Rockford Sheet Steel Co.,
Rockford, Ill.
Southington, Conn.
Ryerson & Son, Inc., Jos. T.,
Chgo., N. Y., St. L., Det., Cleve.
Viking Shear Co., Erie, Pa.

Torches.

Bruno Martin, Saginaw, Mich.
Diener Mfg. Co., G. W.,
Chicago, Ill.
Ryerson & Son, Inc., Jos. T.,
Chgo., N. Y., St. L., Det., Cleve.

Trade Extension.

Copper & Brass Research Assoc-
iation
Sheet Steel Trade Extension
Committee, Cleveland, Ohio

Trimings—Stove and Furnace.

Fanner Mfg. Co., Cleveland, Ohio

Vacuum Cleaner—Furnace.

Brillion Furnace Co.,
Brillion, Wis.
National Super Service Co.,
Toledo, Ohio
Williamson Heater Co.,
Cincinnati, Ohio

Ventilators.

Aeolus Dickinson Co., Chicago, Ill.
Berger Bros. Co.,
Philadelphia, Pa.
Eller Mfg. Co., Canton, Ohio
Lupton's Sons Co., David,
Philadelphia, Pa.
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City

Ventilators—Ceiling.

Hart & Cooley Co.,
New Britain, Conn.
Henry Furnace & Fdy. Co.,
Cleveland, Ohio

Windows—Steel.

Lupton's Sons Co., David,
Philadelphia, Pa.

Wood Faces—Warm Air.

Auer Register Co., Cleveland, Ohio
American Wood Register Co.,
Plymouth, Ind.
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City

WANTS AND SALES

Yearly subscribers to the AMERICAN ARTISAN may insert advertisements of not more than fifty words in our Want and Sales Columns WITHOUT CHARGE for three insertions.

Such advertisements, however, must be limited to help or situation wanted, tools or equipment for sale, to exchange or to buy, business for sale or location desired and must reach our office ten days prior to date of publication. This privilege is not extended to manufacturers or jobbers—or those making a business of buying and selling used machines—employment agencies and brokers.

When sending advertisement state whether your name or blind number is to be used.

BUSINESS CHANCES

Lightning Rods—Dealers who are selling Lightning Protection will make money by writing to us for our latest Factory to Dealer Prices. We employ no salesmen and save you all overhead charges. Our Pure Copper Cable and Fittings are endorsed by the National Board of Fire Underwriters and hundreds of dealers. Write today for samples and prices. L. K. Diddle Company, Marshfield, Wis.

Wanted—Would like to get in touch with a practical man in the fender and body business; I am considering putting in a first class shop of this kind in a live town of 60,000. Must be capable of estimating and have a practical working knowledge of this business. Married man preferred and references required. Address K-514, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Let me hear from owner of hardware store with tin shop in connection, who is willing to sell part interest in business. I am a sheet metal furnace man 35 years old with family. Or, let me hear from a hardware dealer who has need of competent sheet metal and furnace man for year around work. Address S-514, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

For sale in small town in eastern Iowa. Hardware, plumbing and tinning shop. Not much competition. Best schools and churches and a fine community with good prospects. Have two other stores and cannot handle all is my reason for selling. Three to four thousand dollars will handle the deal. Address W-515, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

For Sale—Old established sheet metal shop with tools in rich farming town of 4,000 on main street. Plenty of work the year around. Can't handle it on account of health and other business relations. Can arrange time for responsible parties. If interested write for particulars. Address C. C. Coon, Wauseon, Ohio. X-515

For Sale—Well located power sheet metal shop in Portland, Ore. General sheet metal, blow pipe and furnace business. Building leased at \$40 month. About \$4,000 needed. Terms to responsible party. The right man can make money here. Address O-514, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

For Sale—Well equipped sheet metal shop in the best city in southern Illinois. 12,000 population. Sickness compels me to sell. Don't overlook this opportunity. Address K-515, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

BUSINESS CHANCES

For Sale—Well equipped sheet metal and plumbing business in north central Indiana. Fine farming community. Must sell on account of ill health. Address A. B. Cripe, Camden, Indiana. R-514

For Sale—A well equipped sheet metal and furnace business on account of old age in best city in southern Illinois. If interested write to Mount Vernon Sheet Metal Works, Mt. Vernon, Ill. M-514

SITUATION WANTED

Situation wanted by A-1 sheet metal worker of 25 years' experience on light and heavy sheet metal work; have experience on restaurant equipment, cornice and pipe work and general sheet metal work that comes to jobbing shop; would like to hear from reliable concern where they work 8 or 9 hours per day; state particulars in first letter. Address A-514, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Warm air furnace salesman, 35 years of age, with best of references, wishes position with manufacturer or first class jobber; 12 years' experience in sales work, 8 years in one factory; handles any detail; experienced in forced warm air heating and code estimating; successful sales record; go anywhere; what have you to offer? Address W-513, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Having that rare combination of salesman and engineer in warm air heating service to the customers and realizing there is a change coming over the industry and the concerns having the largest number of satisfied customers are going to hold their own. I am prepared to render that kind of service. Address F-515, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Situation wanted by A-1 furnace installer and metal worker. Sixteen years experience on forced and gravity air heating, thorough knowledge of air travel, air pockets, etc. Have practical solution for almost any trouble that may arise. Fast and accurate. Might consider buying or renting small tin shop. Address E. A. Landis, 917 Marion St., Reading, Pa. S-515

Situation wanted by A-1 combination tinner, plumber and heating man. Thoroughly experienced as clerk in hardware store; married and active; capable of taking charge of shop if desired; best of references and can come at once at reasonable wages; only steady position considered. Address X-513, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Young man 32 years of age desires permanent connection with reliable furnace company. Has had nine years' experience in the furnace business covering all phases including manufacturing, selling and handling of correspondence. Can furnish best of references. Address A-515, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Man with 20 years' experience in manufacture and sales of warm air furnaces and familiar with all types warm air, hot water and steam heat, desires connection; prefer traveling—no choice of territory; 42 years of age. Address D-514, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Situation wanted by all around capable sheet metal worker, lay out, assemble and correct any branch of same, work from blue prints, also acetylene welding, and electric spot welding. 38 years old, best of health. Not afraid of work. Address Tinner, 70 Ehrman Ave., Cincinnati, Ohio. T-515

Situation Wanted—Young man, age 28, with 10 years' experience in job work, furnace, cornice, pipe work, slate and tile roofing; pattern cutting a specialty; married and will go anywhere for right kind of job. Address C-514, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Salesman calling on furniture and hardware department store trade in Chicago and suburbs wants line of stove pipe, stove boards and stove rests to sell to above dealers on commission basis. A-1 references. Address E-515, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

SITUATION WANTED

Man thoroughly versed, with extraordinary experience in engineering and selling of up-to-date warm air heating, open to negotiate for position with manufacturer or contracting concern at once. Address D-515, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

A competent furnace man wants a position as furnace installer or salesman. Over 20 years of experience. Strictly sober and reliable, able to handle this line of work and can give A-1 references. Address R-515, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Expert layoutman, shop foreman and estimator wishes connection with reliable sheet metal firm. Age 36 years—23 years' experience has given me knowledge at all lines the trade requires. Address O-515, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Young man with fan heating and ventilating experience, able to take charge of shop or erect work. Wants position with concern making a business of fan heating. Will go anywhere. Address B-515, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

A competent plumber, furnace man and tinner wants position about February 1 or later; strictly sober and reliable and able to take charge of work. Address, stating wages, B-514, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Situation wanted by A-1 combination man. Have had 18 years of experience, can lay out own patterns in sheet metal, handle hot air, hot water and steam heat. Married. Address L. C. Stokakes, Anamosa, Iowa. C-515

Situation wanted by good combination man, tinning, plumbing and heating; now employed, wants change; south preferred; state wages and hours. Address Z-513, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Situation wanted by all around sheet metal worker and furnace man; health and habits o. k.; can take charge if required and produce. Address T-513, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Situation wanted by tinner and furnace installer; A-1 references; central Illinois preferred. Address S-513, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

HELP WANTED

Wanted—Combination warm air, hot water and steam heat; honest, industrious, steady man. Must furnish best references. Good wages and steady work for the right man. State wages expected in first letter. Address Success Heating Co., Chippewa Falls, Wisconsin. A-516

Master Plumber—Combination in hot water, steam, vapor and warm air to act as working foreman; must have unusual amount of experience in all of above lines along modern heating and plumbing practices. Steady work, investment if desired. Write A. C. Butters, 439 Eastwood Pl., Milwaukee, Wis. F-514

We want a live man capable of taking charge of our shop in south. Work from 20 to 50 men. Do sheet metal, tile, slate and composition roof work. Give full information as to experience, age, salary expected, etc. Address G-515, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Wanted—Experienced plumber, steam and hot water heating man. Must be able to lay out jobs and do some estimating. Located in northern part of Illinois. State wages wanted. Address B-516, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

We have steady job in south for two good sheet metal workers. Prefer men with experience on tile and slate roofing. Scale, \$1.00 per hour. Advise experience, age and when you can report to H-515, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Wanted—A-1 salesman to call on jobbers and manufacturers in the warm air heating industry; attractive commission arrangement; handle as side line. Address E-514, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Wanted—Salesman to cover Chicago territory, to sell high grade line of metal warm air registers. Liberal proposition. For details address F-515, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

TOOLS AND MACHINES

For Sale—One 30-in. square shears—1 30-in. rolls—1 30-in. stove pipe folder—1 20-in. bar folder—1 20-in. groover—1 triplex lever punch, 3/16-1/4-5/16, burring, wiring, turning, swedging, crimping machines—stakes, bench, etc. Will sell all or in part. Address Jacob Brenner, 47 Third St., Fond du Lac, Wis. T-514

We are in the market for the following used machinery: Power or hand ROTARY CUTTING SHEARS for No. 10 gauge, four or five foot, BOX or PAN BRAKE for No. 12 gauge, medium size bench or stand POWER PRESS. Address Dean Specialty Works, San Antonio, Texas. E-513

For Sale—1 No. 41 Beaver die, cuts 2 1/2 to 4 inches; 1 No. 4 Barnes 3 wheel pipe cutter; 1 4-inch piper vise; 1 36-inch pipe wrench. These tools are all brand new and will sacrifice for \$55. Address Chas. Y. Neills, 705 S. Franklin St., Robinson, Ill. H-514

For Trade—One 30-in. squaring shears in good condition for other tools. Can use serpentine shear, welding outfit or Whitney punch. Address J. M. Prall, 405 West Fifth St., Oklahoma City, Okla. Y-514 MISC

For Sale—The following tools in A-1 shape. One 30-in. foot power shears, \$35.00. One Standard bending machine with Standard, \$15.00. F. o. b., Red Wing. Address Wm. A. Meyer, Red Wing, Minn. Y-515

TOOLS AND MACHINES

For Sale—Good ten-foot steel brake, and Chicago elbow machine, with jigs for four-piece elbow V.I.Z. 7-8-9-10-12-14-16-18-inch, in good condition. Address Milton Rogers & Sons Co., Omaha, Nebr. M-515

Wanted—One used rotary or throatless shear to fasten on bench hand, operated for 18 ga. and lighter. In quoting, state make and condition. Address Frederick H. Lord, Belle Haven, Va. X-514

Wanted—2,500 full enamel gas ranges 16-in. oven of modern design. Describe fully and best cash price. Address Z-514. AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

For Sale—Complete set of tinsmith's tools in A-1 shape at a bargain for cash. For full particulars write E. A. Goehring, 1336 Retallack St., Regina, Sask., Canada. G-514

Wanted to Buy—A used set of tinner's, plumber's and steamfitter's tools. Must be in good shape and priced right. Address Box 473, Harvey, N. D. L-515

For Sale—Power conductor pipe seaming and corrugating machine, complete. Address W-514, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Wanted—Second hand rising hammers and 4-head tea kettle stake. Address J. Zicke, 440 West Chalmers St., Youngstown, Ohio. X-515

TOOLS AND MACHINES

Wanted—Used burring machine; state condition, make and price; must be in good condition and priced right. Address F. D. Savage, New Market, Ia. L-514

MISCELLANEOUS

For Sale—1,000 ft. giant 32 wire fine copper lightning rod cable; 16 complete tops—4 high and 8 bungalow; 16 glass balls—8 white, 8 blue; 2 plain aluminum arrow vanes; 2 23-inch horse vanes; 2 23-inch cow vanes. All brand new. Cost \$115—\$80 cash takes it. Address J-514. AMERICAN ARTISAN, 39 N. Clark St., Chicago, Ill.

Would like to know the whereabouts of Louis B. Berg who at one time was employed by the Homer Furnace Company and the Rudy Furnace Company. Mr. Berg, we understand, has lived in Topeka, Kansas. Address P-513, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

For Sale—Floor cases, counter cases, open table, scales, cash register, Sunstrand adding machine, Oliver typewriter, F. E. check protectors, squaring shears, plumbing tools, etc. Address George H. Frise, Estate, Odell, Illinois. J-515

SPECIAL NOTICES

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Patent Attorney
Barrister Bldg., WASHINGTON, D. C.

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Patented Attachment for Old, or New Steel Warm Air Furnaces, that Saves Fuel, Increases Efficiency, and Prolongs the life of the Furnace.

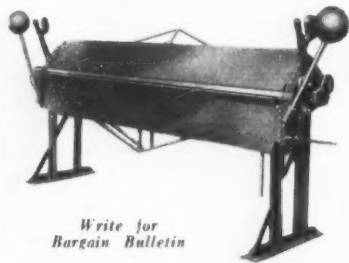
Suitable for either Fan or Gravity systems. This is without question, the Greatest Unopposed Money Making Warm Air Specialty in existence.

I will sell outright or on Royalty Basis, to a concern capable of taking complete charge of manufacture and sale of this unparalleled specialty. My 12-page illustrated booklet tells the story of this Master Heating Appliance. Interested parties requested to write E. R. Taylor, Malcom, Iowa.

C516

WANTED

Canadian Warm Air Furnace Manufacturer with good trade connection and live wire sales force, wants to secure exclusive Agency for a good side line, that can be marketed to the Tinsmithing, Plumbing and Hardware trade. What have you to offer? Address O513, American Artisan, 139 N. Clark St., Chicago, Ill.

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Where you can get what you want when you want it and as you want it.

THIS WEEK'S BARGAINS

1—Plain Crimper	\$ 8.00
1—Large Burring Machine	\$ 8.50
1—20" Bar Folder	\$20.00
1—15" Floor Drill	\$30.00
1—Deep Throat Kick Punch	\$50.00
1—10' 18 ga. Power Shear Direct Motor Drive, with Motor	\$475.00
1—Gutter Beader	\$ 8.00

INTERSTATE MACHINERY COMPANY
601 W. Monroe St. Chicago, Ill.

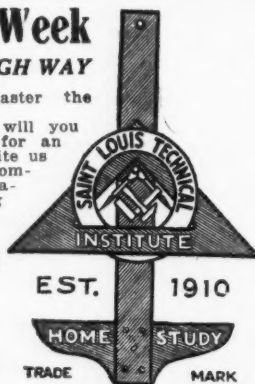
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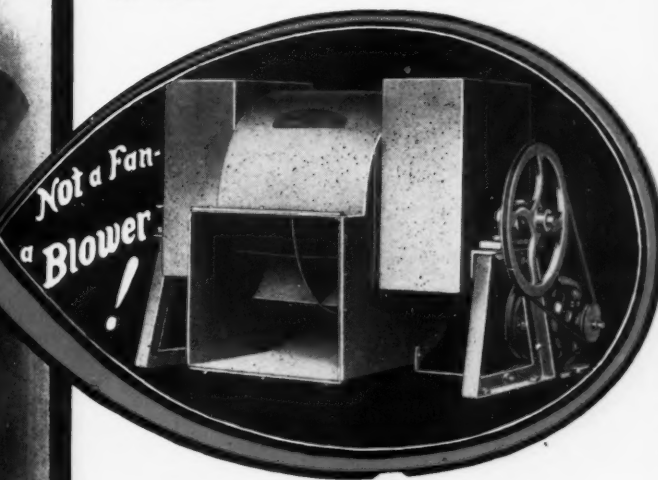
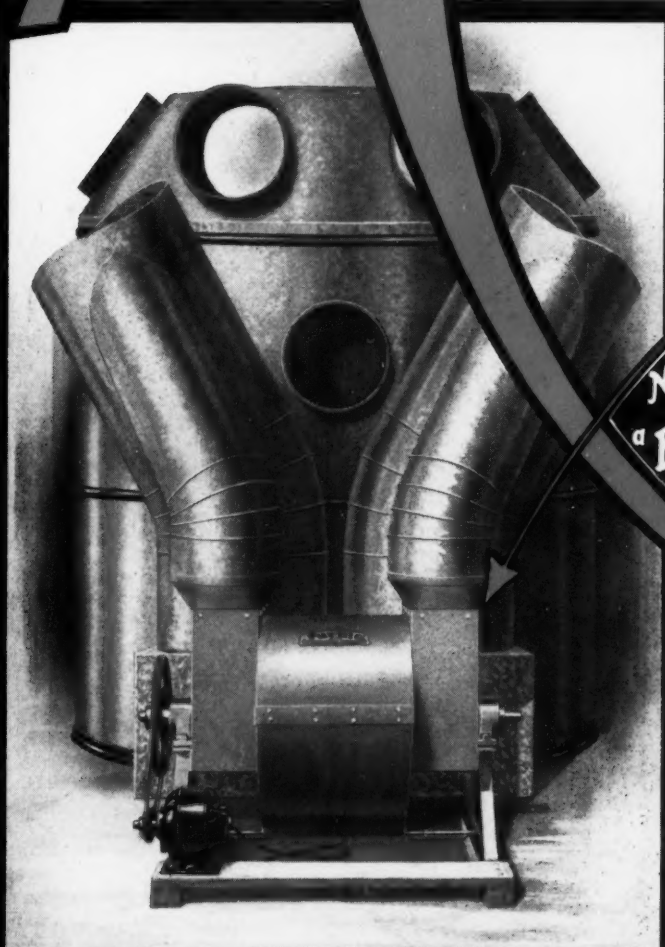
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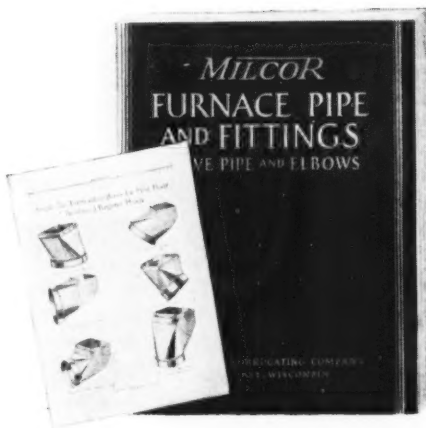
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